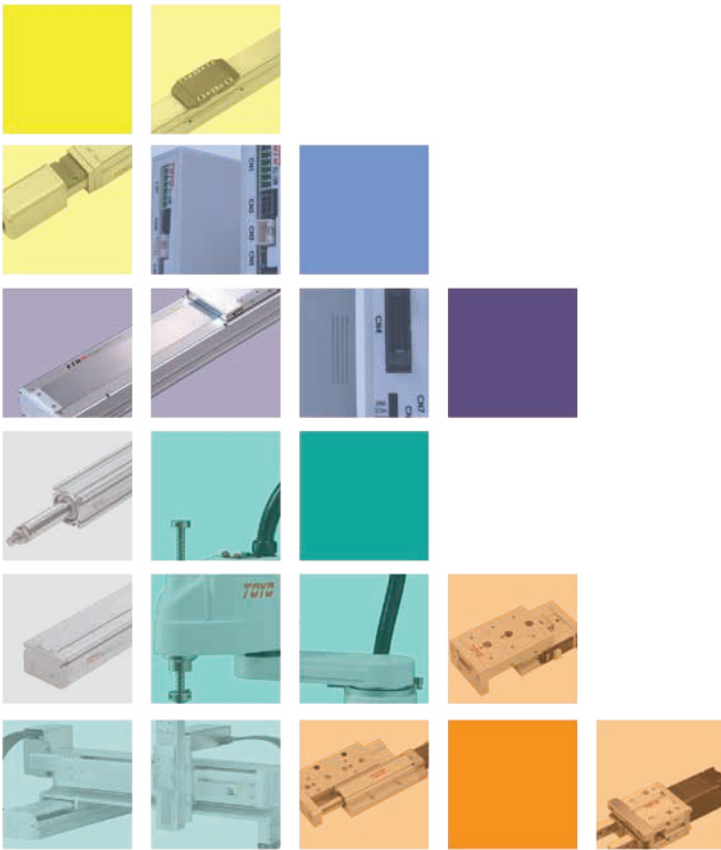


9001<sup>ISO</sup> 14001<sup>ISO</sup> 18001<sup>OHSAS</sup>



# Electric Actuator

Product Catalog

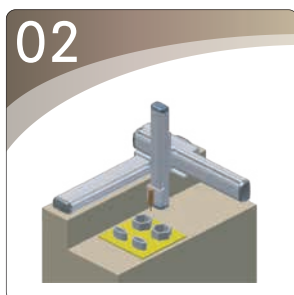


# Item Index



Company Introduction /  
New Product / Applications

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Purchase Guide / Spec Index

P.039



Built-in Guideway  
Ball Screw Actuator

P.072



Rod Type Built-in Guideway  
Ball Screw Actuator

P.108



Standard Ball Screw Actuator

P.132



Standard Belt Actuator

P.194

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Europe Type Belt Actuator

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Clean Room Ball Screw Actuator

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## About TOYO



Based on the foundation of **Integrity, Technology and Service**, TOYO intends to create the maximum value for society and industry, striving for the goal of exceeding the needs of our customers.

TOYO Group was established in 2000, <Exceed Your Needs> is our Company Principle. With heavy investment in R&D and innovation, we gain the majority of customer acceptance and adoption. Especially in Taiwan and China market of robotics, we have become the brand of choice for customers. Also, TOYO is also successfully exporting Taiwan-made products to over 15 advanced countries including; Japan, United States, Italy, Korea...etc. and we are earning a very good reputation in the market.

In order to keep improving the competitiveness, TOYO put a lot of investment in R&D, and developed a variety cost-effective controller combined single-axis and multi-axis Cartesian robots. In addition, in order to provide the rapid service to customers in the region around the world, we have set up production facilities in Tainan Taiwan, Suzhou China and Fukuoka Japan, Also has been cooperating with agents in more than nine countries, like the United States, Europe and Southeast Asia. Providing the Global Services System is our aim.

### Production and Technology



To improve the production efficiency and reduce the cost, TOYO heavily investing in R&D and innovation for many years and combined the all-in-one service which include the SOP, Key component productions, production Know-how and backlash adjustment.

### Quality assurance



ISO 9001/14001 and OHSAS 18001 certificated. Factory is equipped with 2D/3D inspection machine with Japanese technician on site to ensure the quality of the product.

### Lead time of standard product: 10 days



10 days lead time for standard product if PO is placed by 12pm. (Taiwanese customer only.)



# TOYO Website Instructions

You can download following files from TOYO's website.

## URL

<http://www.toyorobot.com>

- ① Catalog
- ② CAD files
- ③ Manuals
- ④ Software



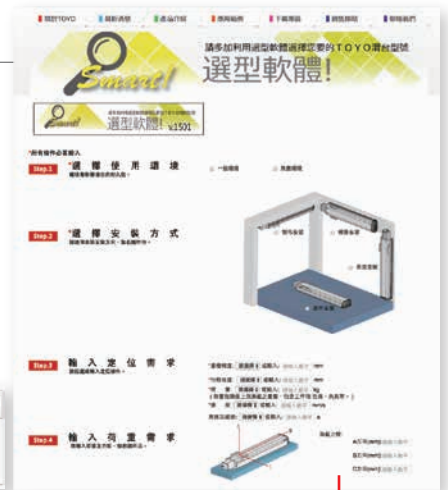
## Smart! Model Selection Tool

Selection tool can help you to find the most suitable product for your applications.

### Instructions:

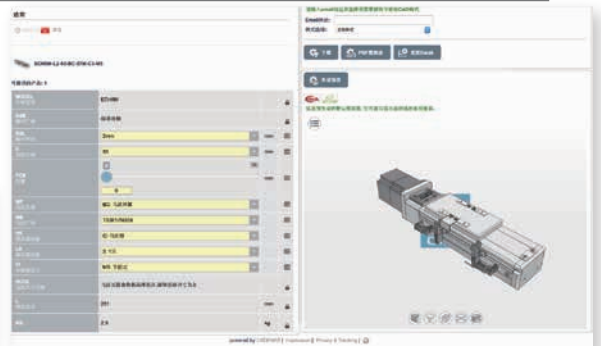
- ① Select environment
- ② Select mounting position
- ③ Select accuracy requirement
- ④ Enter the payload requirement

Please register to using the Selection Tool.



After submitted the requirements, the result will show up and the 3D preview is on the right of the page.

滑台行程	單方向行程	C方向行程	規格PDF	圖處CAD	規格3D模型 (Cartesian 垂直結構)
500	50	110	<a href="#">EC-HM-L5-300.pdf</a>	<a href="#">EC-HM-5TM.dwg</a>	<a href="#">EC-HM-5TM</a>
100	10	25	<a href="#">EC-HM-L5-300.pdf</a>	<a href="#">EC-HM-5TM.dwg</a>	<a href="#">EC-HM-5TM</a>
500	50	110	<a href="#">EC-HM-L5-300.pdf</a>	<a href="#">EC-HM-100N.dwg</a>	<a href="#">EC-HM-100N</a>
100	10	25	<a href="#">EC-HM-L5-300.pdf</a>	<a href="#">EC-HM-100N.dwg</a>	<a href="#">EC-HM-100N</a>



## Catalogs and Drawing Download

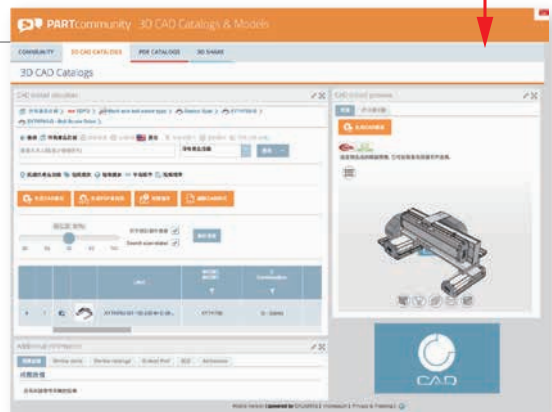
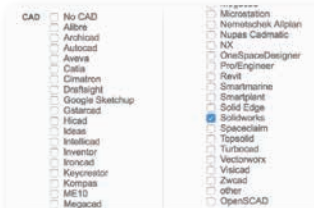
You can find the catalogs and information of products here.



## 3D Drawing Download

This website can generate the selected types of CAD models and send it to your email.

Please register to download the 3D files.



If you have any question, Please contact us.

**URL** <http://www.toyorobot.com>

Please leave your message on the page "Contact Us".

**Email** [info@toyorobot.com](mailto:info@toyorobot.com)

**Phone** Taiwan 0800-800-893  
China 400-875-0009



## TOYO Product Lines

### Six Automation Product Lines

We are continuing research and develop the new products to solve the upcoming requirement of automation fields, which include the actuators with/without motor and controller, Automatic Guided Vehicle(AGV). Now we have more than 1,000 products. Precise positioning and speed control can achieve the high accuracy requirement of linear movement and pick and place movement.

Electric Actuator



Electric Cylinder



Electric Gripper



Single Robots



Desktop Robots



Automated Guided Vehicle



- ⊕ High price-performance ratio
- ⊕ Flexible customization
- ⊕ Short delivery time
- ⊕ Stable quality
- ⊕ Versatile product line



## TOYO Service

### Free demo machine



TOYO prepare standard unit for customer' s demonstration and test.They are free rental for our customers.(15 days advanced notice / Thelongest rental period 30 days.) Please contact our sales and local agents.

### 24 hours online service



24 Taiwan: **0800-800-893**  
 24 China: **400-875-0009**  
 24hr on call service,please contact us for any questions or enquiries.

### Technical conference



New product seminars and technical conferences are hold regularly to share our latest technology with free demo machine customers.

### Exhibitions



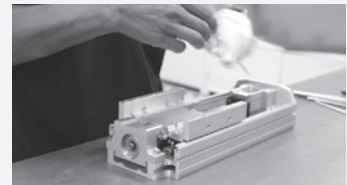
We participate in exhibitions frequently.Please contact us for more information.

### Puncar Action



For the purpose of leting the clients all over the island to have a chance to experience and be more familiar with the demonstrated product personally, we therefore build a mobile puncar cruising around the Taiwan island enable the clients to test it. For more details, please do not hesitate to contact us.

### Inspection and Maintenance

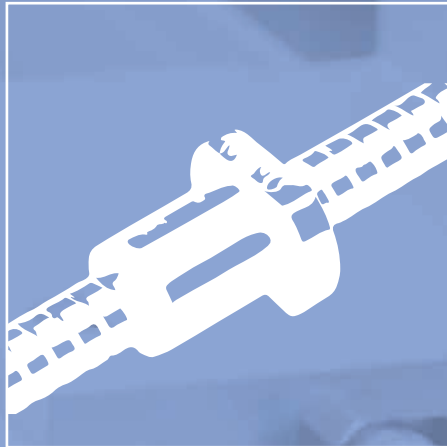


If the product has problem or out of order, you can send it back for inspection and maintenance.If the product is out of warranty, we still can repair it for certain charge.

## Global Service Network

To ensure customer satisfaction, TOYO provides a diversity services to meet the different customers' requirements.

## Ball Screw Driven



### High Accuracy, High Payload

Ball screw driven module design can provides the high accuracy and steady movement. Also secure the reliability and quality. Providing the  $\pm 0.01\text{mm}$  of the repeatability. This series can support the payload form 5kg to 150kg, which could be applied widely.

## Ball Screw Type Module

### Main Usage:

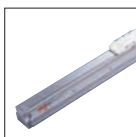
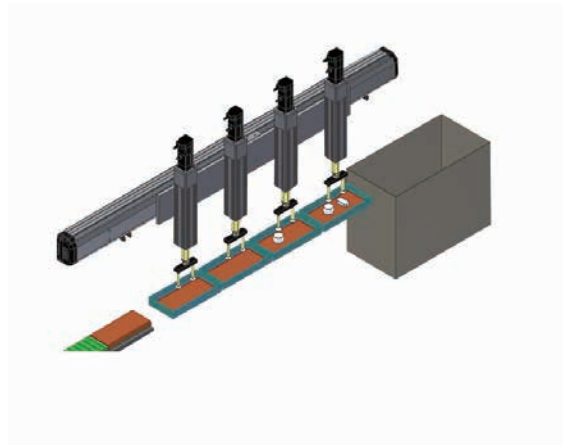
Positioning, Pick and place, Carrying, Press-fitting.

### Applications:

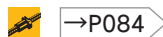
- ▲ Electronic device assemble
- ▲ Liquid filling
- ▲ Welding
- ▲ Press-fitting of Circuit Board and Wafer Box
- ▲ Unit arrangement.

### Industries:

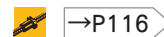
- TFT-LCD
- Semiconductor
- LED
- Solar energy



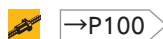
Built-in Guideway Ball Screw Actuator  
GTH Series



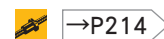
Standard Ball Screw Actuator  
ETH Series



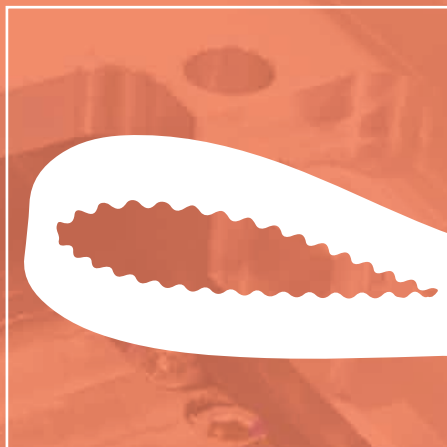
Rod Type Built-in Guideway Ball Screw Actuator  
GTY Series



Rod Type Actuator  
Y Series



## Belt Type Driven



**Long Stroke, High Speed**

Belt driven module design can provides the longer stroke, which can apply in a long distance movement required applications. Compact structure design resulting in lower cost and time saving. This series can support the stroke up to 5,000mm, and speed can up to 5,000mm/s maximize your production efficiency.

## Belt Type Module

### Main Usage:

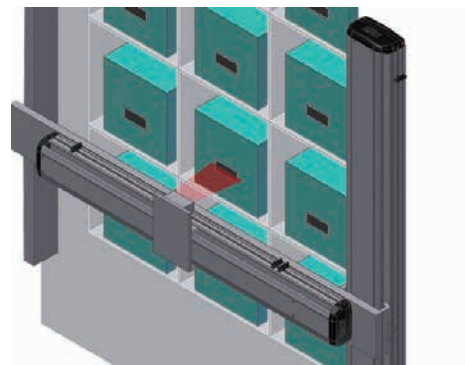
Long distance movement required applications, Carrying, Printer, Adhesive dispenser.

### Applications:

- ▲ Parts shifting between production lines
- ▲ High speed conveyor
- ▲ Tape cutting device
- ▲ Parts shifting between CNC machines

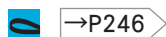
### Industries:

- TFT-LCD
- Solar energy
- Food Industry
- Packing
- Machining



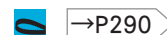
Standard Belt Actuator

ETB Series



Europe Type Belt Actuator

M Series



## Clean Room Type



Dust Sealing, Long life

Same performance as ETH/ETB. Sealing design can prevent dirt and foreign objects from penetrating inside. Equipped with air fitting device, which can keep the internal component clean. Clean type can support to clean room grade class 10 (examined by SGS) widely applying in the semiconductor industry and food supply chain. Effectively minimize the pollution of the actuator and working environment.

## Clean Room Type Module

### Main Usage:

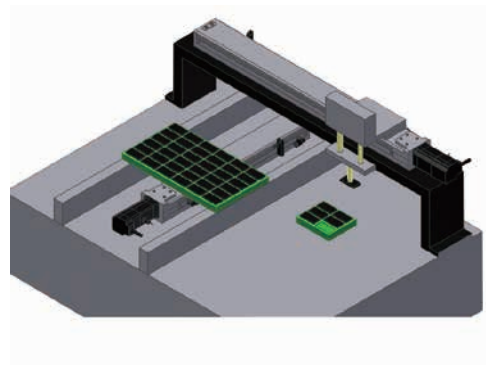
Positioning, Pick and place, Carrying, Press-fitting in clean room environment.

### Applications:

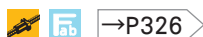
- ▲ Surface mount system
- ▲ Packaging
- ▲ Testing
- ▲ Inspection

### Industries:

- Semiconductor
- FPD industry



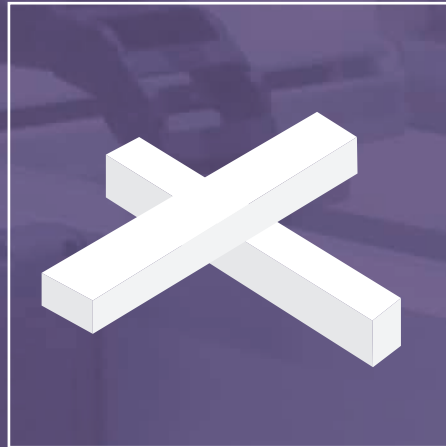
Clean Room Ball Screw  
Actuator  
ECH Series



Clean Room Belt  
ECB Series



## Multi-Axis Type



**Easy design**

Highly customizable the multi-axis design, like XY, XYZ and/or adding a rotation axis for the applications are possible. Besides, it can also use two Y axis or two Z axis for the applications. Multi-axis system change the movement from one dimension to two or three dimensions. Maximize the application possibilities, and minimize the time of assembly. Also, can keep the consistency of the appearance.



## Multi-axis Module

### Main Usage:

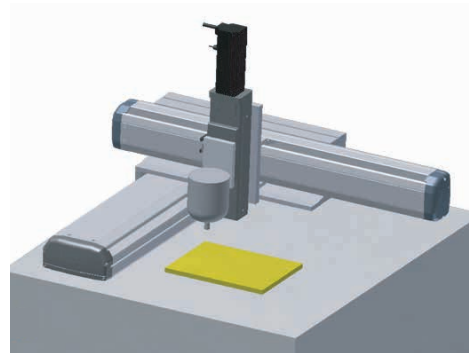
Most common combinations are Gantry type, Arm type, XZ type.  
Circular motion and interpolation motion are possible when using with multi-axis controller.

### Applications:

- ▲ Adhesive dispenser
- ▲ Electronic component inspections
- ▲ CCD Substrate inspections
- ▲ Welding

### Industries:

- Semiconductor
- FPD industry
- Solar energy
- Food supply chain
- Packing
- Machining



Multi Axis Ball Screw Type

XYTH Series

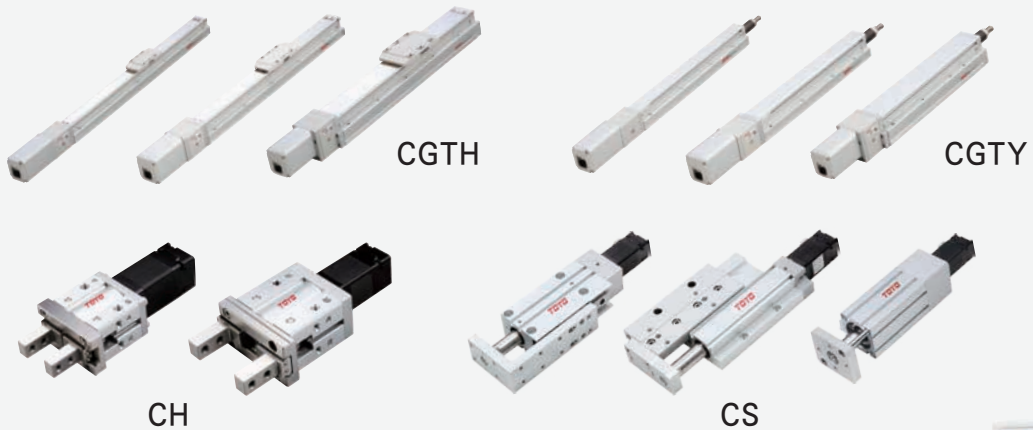


Multi Axis Belt Type

XYTB Series



# The Perfect Combination of Actuator and Controller



- 👍 TC100 controller combines three types of control modes; **Pulse, I/O, and Communication.**
- 👍 and the controller can output the signal from the motor encoder (optional) to the host control unit.



## Servo Cylinder Series CGTH / CGTY / CS / CH Series

For further information, please refer to the individual manual.

Full product lines of Actuators, Rod Cylinders, and Grippers

Easy control

Software included

Cost-effective products

# NEW PRODUCT

## Abundant collocation

TC100 controller is compatible to various modules and cables. It can be easily set up and adjusting, also reduce the cost for reduce the cost of repair.

- Slider Cylinder: CTH/CTB Series
- Rod Cylinder/ Miniature Cylinder: CY/CS Series
- Electric Gripper: CH Series
- Electric Press: CP Series
- Electric Rotary: CR Series

## Easy to use UI software (TOYO-Single)

Support Traditional Chinese/English/Japanese user interfaces.

- Position teaching
- Parameter setting
- Software edition
- Error log
- Operation monitoring
- Data backup and reading

## Flexible control interface

One single unit can support 3 different control interfaces.

- **Pulse control:** Support both Line Drive (500K Hz) and Open collector (200K Hz) two different kinds of interface. Besides, the **<Encoder with extending output function of motor>** can be added optionally and it can help to do the closed-loop control with the host control unit.
- **I/O control:** By I/O control, max. 127 positioning points can be executed.
- **Communication control:** use Modbus as the interface of RS485 (connect max.16 controllers) and 1 set mini USB (special for TOYO-Single).

## Various control mode

Following control modes can be combined randomly to the action mode.

- Position control
- Speed control
- Clamping force control (Electrical gripper only)
- Measure control (Electrical gripper only)
- Pushing force control

## Excellent performance

Smooth operation.

- High performance closed circuit stepping motor with encoder will not be out of steps even with high speed movement.
- Smoother movement and more accurate positioning.
- The speed can be increased 20% (depending on model different) by switching the power voltage to DC48V, normally use DC24V.

## Direct Drive Motor (Non-coupling Design)



**New**

I/O X PULSE X Communication



T1

Single-Axis Robots  
**STH / SGTH / SGTY Series**

For further information, please refer to the individual manual.

**High accuracy, high speed, high response**

**Line-up complete, suitable for 50w~750w servo motor**


**Payload up to 5kg~150kg**

**Dimensions are same as ETH \ GTH series**

Structure	Built-in Guideway Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	


# NEW PRODUCT

**Max. speed 3600 RPM**

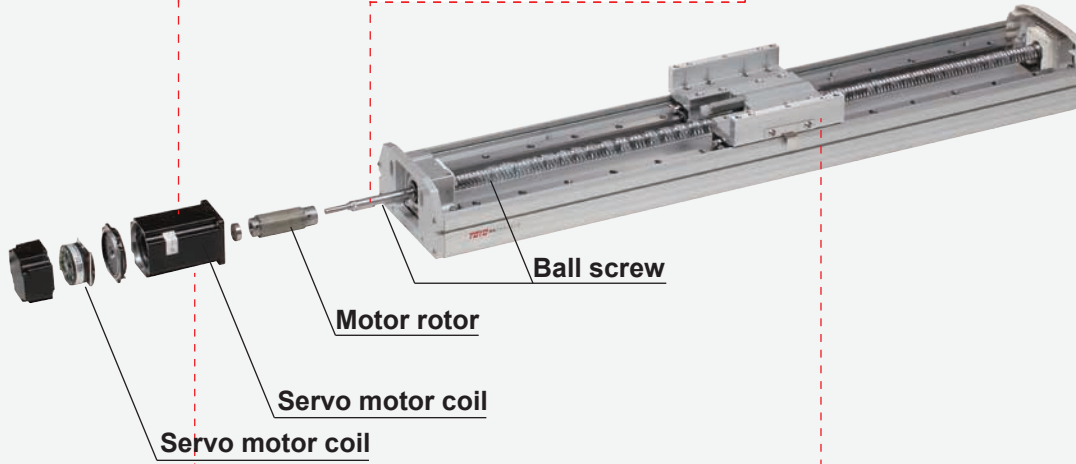


The motor rotation speed is 20% higher than standard servo motor (max. 3000 RPM).

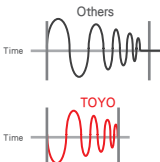
**No coupling design**



No risk of coupling system failure.



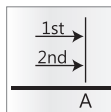
**Quick response**



Rapid stop shorten motor adjusting and setting time.

**FAST!!!**

**Repeatability**



Accuracy and repeatability are improved with a direct drive assembly.

**PRECISE!!!**

# Next Generation of Automation, High Accuracy and Competitive Price



New

I/O X PULSE X Communication



T2

## Economic Mandrel Linear Motor Driven Actuator LMR Series

For further information, please refer to the individual manual.

**Maximum stroke: 1940 mm**

**Repeatability:  $\pm 0.002$ mm**

**Various options of carriage**

**High accuracy, long stroke, high speed**

Repeatability  
 **$\pm 0.002$ mm**

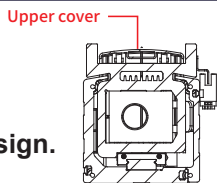
Resolution  
**0.001mm**

Structure	Built-in Guideway / Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

# NEW PRODUCT

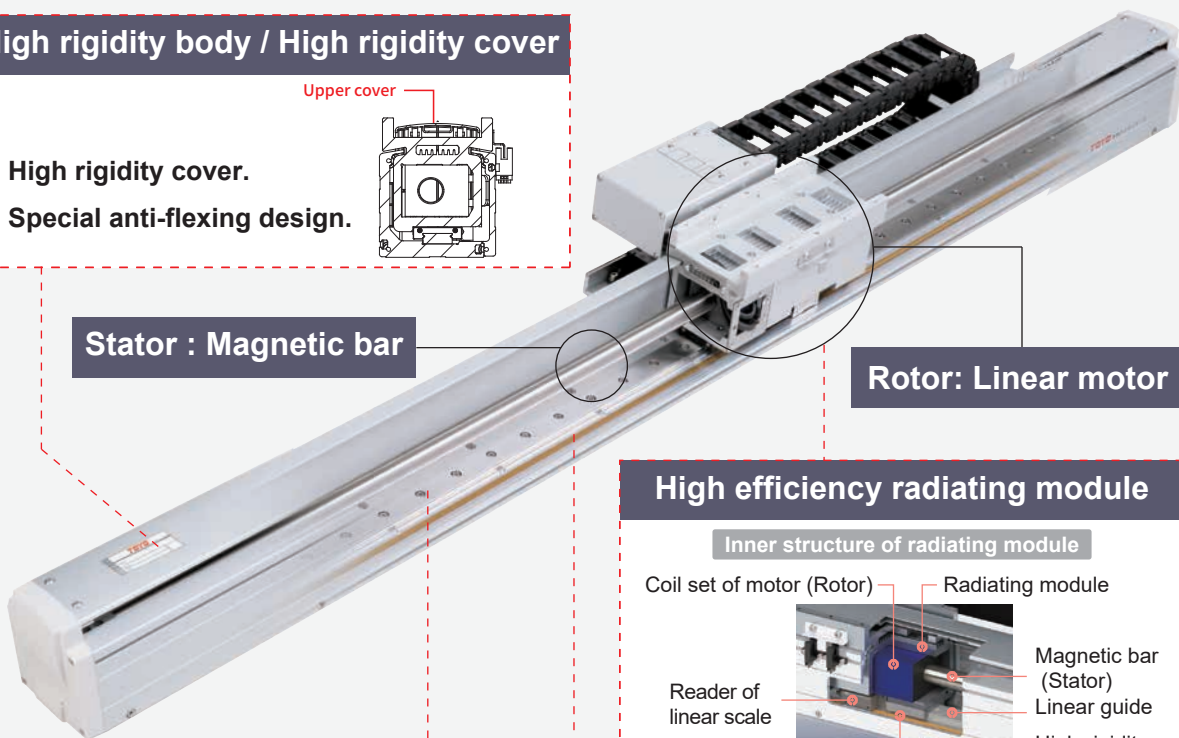
## High rigidity body / High rigidity cover

**High rigidity cover.**  
Special anti-flexing design.



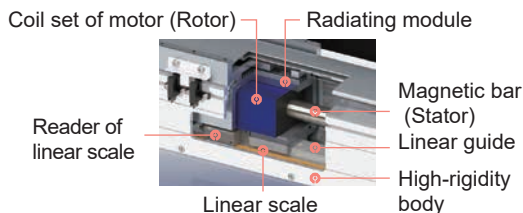
**Stator : Magnetic bar**

**Rotor: Linear motor**



## High efficiency radiating module

### Inner structure of radiating module



## THK guiding system

### Quiet operation:

Effectively reduce the operating noise and enhance the smoothness, durability and lubrication efficiency. It is broader in different industrial application and more suitable for high speed, Quiet and low dust requirement of high-tech industries.



## Linear scale

Optical linear scale or magnetic linear scale is optional.

- ▲ Due to the requirement of different environments, optical linear scale or magnetic linear scale is optional. The highest resolution of magnetic linear scale can up to 0.001mm.
- ▲ Exceed the accuracy of ball screw.

\* External mounted linear scale can be chosen.

## Carriage customize

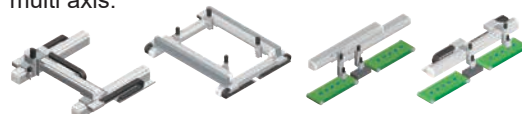


Double carriage double motor drive    Double carriage single motor drive    Long carriage single motor drive

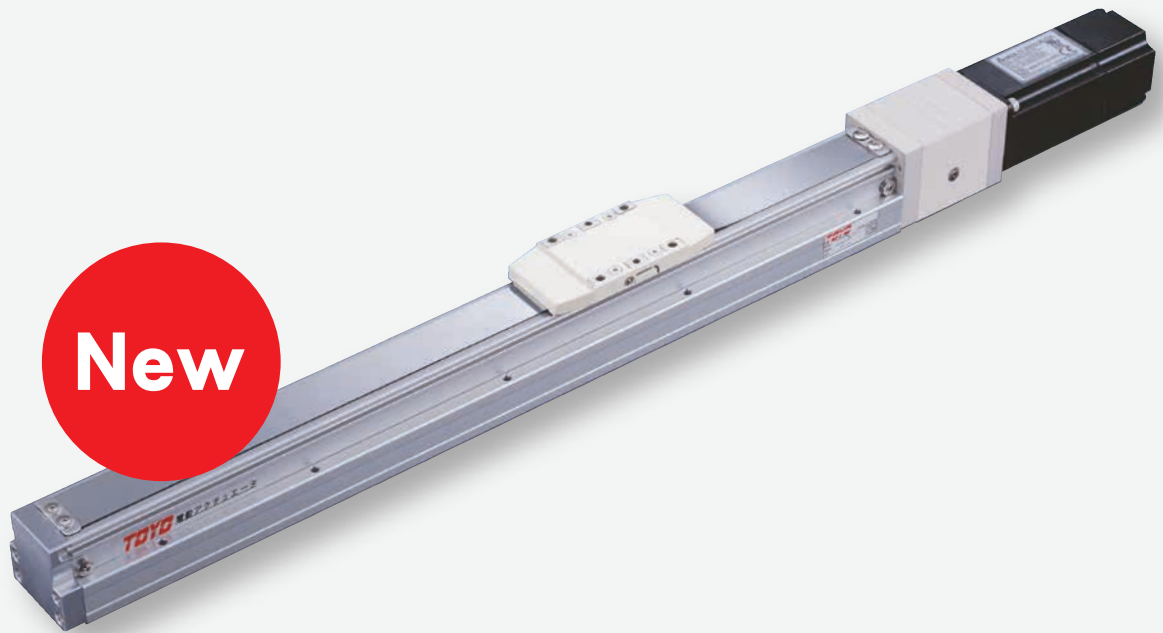
## Variety of combinations

Optional multi powered carriages on one axis or Synchronized action on multi axis.

Optional multi carriages, up to 4 carriages.



## Built-in Linear Guide, Flatness and Straightness are Highly Improved



### Built-in Guideway Ball Screw Actuator GTH Series

→P084

**Maximum stroke: 1250mm**

**Repeatability can be improved to  $\pm 0.005\text{mm}$  with C5 grade ground ballscrew**

**Easy assembly**

**High rigidity**

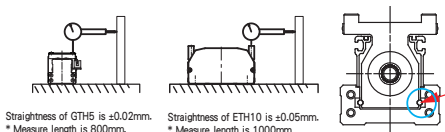


Structure	Built-in Guideway / Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

# NEW PRODUCT

## Flatness & Straightness

Built in linear rail design, Straightness and Flatness are highly improved to  $\pm 0.02\text{mm}$ .



Straightness of GTH5 is  $\pm 0.02\text{mm}$ .  
\* Measure length is 800mm.

Straightness of ETH10 is  $\pm 0.05\text{mm}$ .  
\* Measure length is 1000mm.

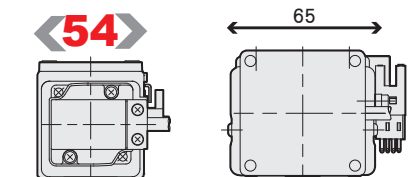
## Rigidity improved

Stiff aluminum body cross section and one piece steel carriage improves rigidity.

## Roller support reduces particulate from cover strip

Special steel strip cover sealing design can prevent dirt and foreign objects from penetrating inside.

## Smaller size



GTH5

ETH6M

Compare with ETH series at same condition(30kg payload.)

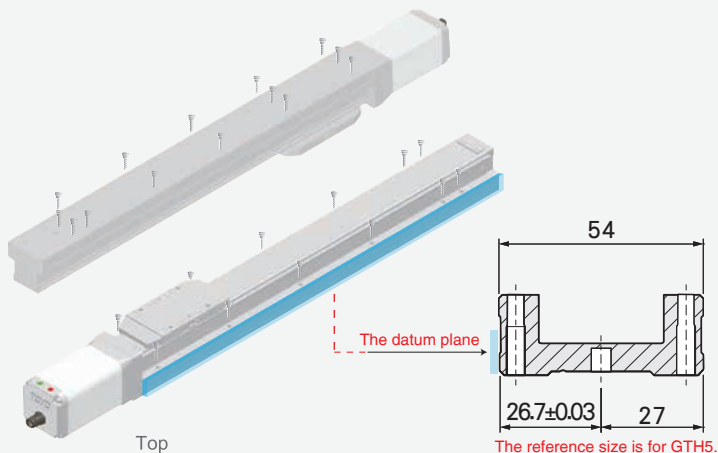
## Easy to maintain

Single exterior grease port for both ballscrew and linear guide.

## Easy assemble

Can be fixed from the top and bottom without removing the cover.

Mounting datum plane designed on the side of the body.  
Built in pin holes.



Top

The reference size is for GTH5.



## Long Stroke, High Accuracy, High Speed



Long Stroke Ball Screw Actuator  
ETH17M / ETH22M Series

→P197

**Maximum stroke: 2400 mm**

**Repeatability:  $\pm 0.01$ mm**

**Easy maintenance**

**Long stroke without reducing the speed**

# NEW PRODUCT

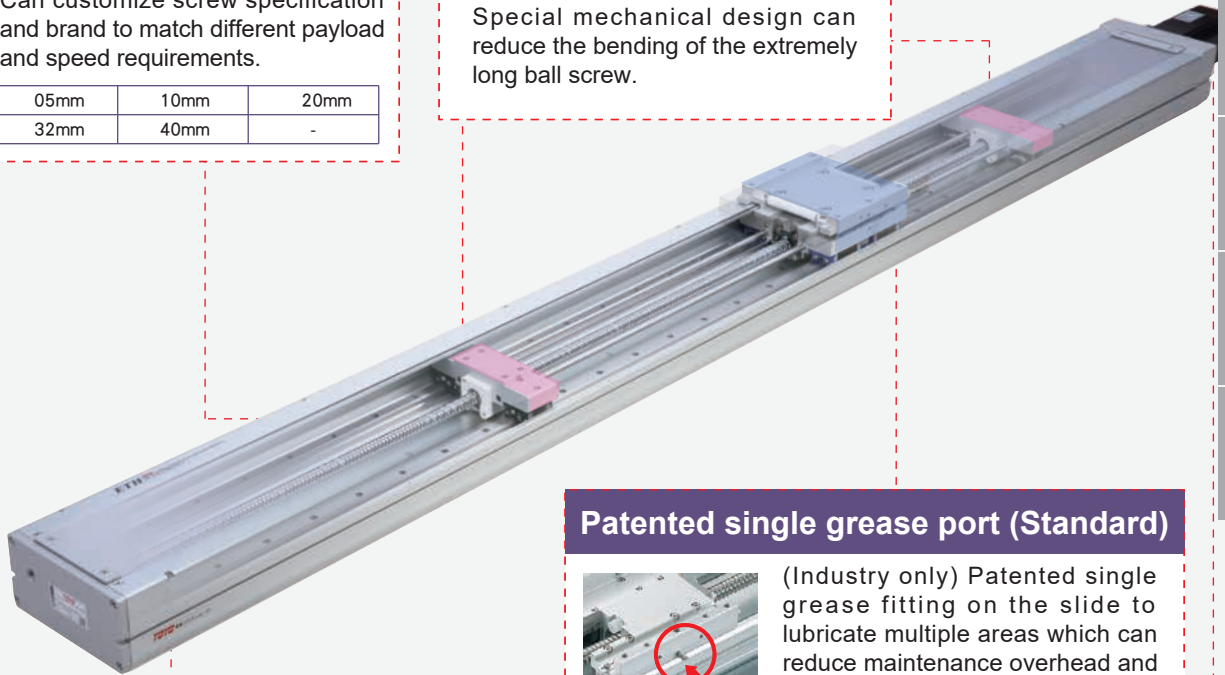
## Ball screw brand and lead

Can customize screw specification and brand to match different payload and speed requirements.

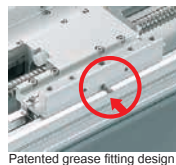
05mm	10mm	20mm
32mm	40mm	-

## Slider support design

Special mechanical design can reduce the bending of the extremely long ball screw.



## Patented single grease port (Standard)



Patented grease fitting design

(Industry only) Patented single grease fitting on the slide to lubricate multiple areas which can reduce maintenance overhead and time. Grease fitting can also be tailored to customer specified orientation.

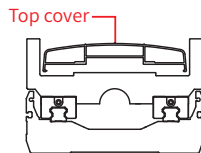
## High rigidity body and cover

### High rigidity mainframe and cover :

One piece extruded aluminum structure for optimal rigidity and weight ratio.

### Torsion resist top top cover :

Special torsion-resistant top lid design to prevent deformation during long stroke.



## Motor install options

Multiple motor installation positions provides the flexibility for machine design.



BC Motor Exposed

BL Motor Left Side

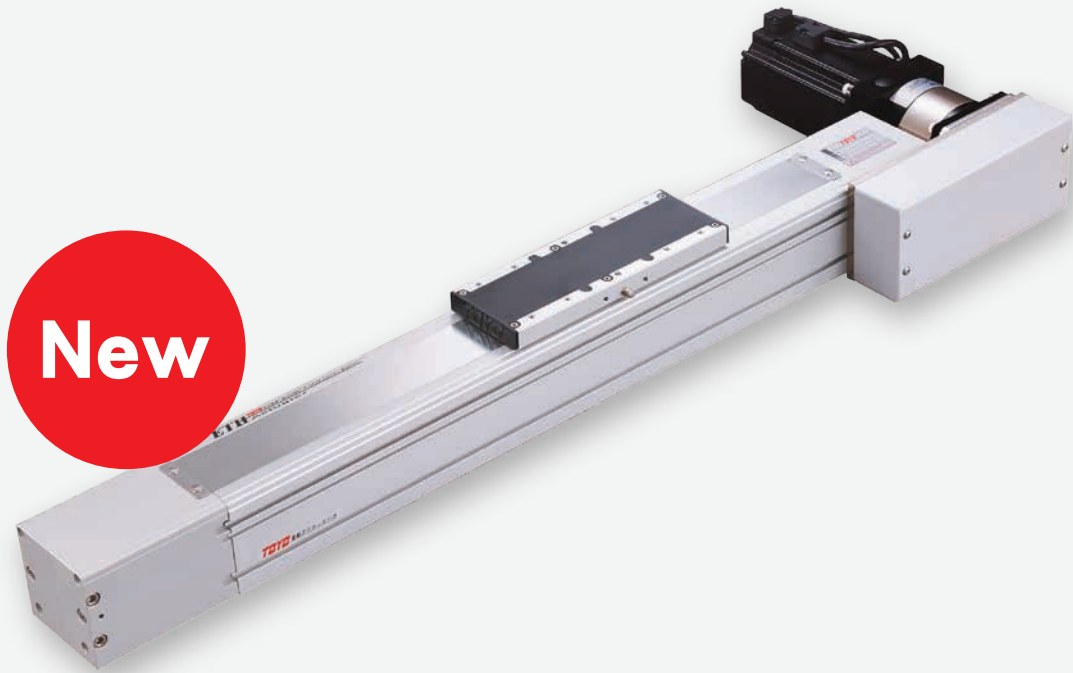
BR Motor Right Side

BM Motor Bottom Side

M Motor Inside

© Customizable for clean room type.

## High Payload, High Speed



Europe Type Belt Actuator  
MK Series

→P301

**Maximum stroke: 5000 mm**

**Repeatability:  $\pm 0.1$ mm**

**Design of steel roller support easy to reduce dust**

**Easy maintenance**

# NEW PRODUCT

## Easy maintenance

Grease bearings from external nipple.  
No need to disassemble the unit.

## Dust-proof steel cover strip

All series with dust-proof steel cover strip.

## Vertical application

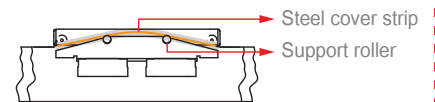


Able to use in vertical application.

**Vertical ok!!!**

## Design of steel roller support easy to reduce particulate

Special support roller design can reduce the particulate caused from the steel cover strip and carriage.



## Fixing method

Can be fixed using side or bottom T-slots for mounting.

## Flexible motor assembly type

Optional motor assembly type, more flexibility in designing the machine.



L Motor  
Left Side



LU Motor  
Left Upper Side



LD Motor  
Left Lower Side



LT Reducer With  
Motor Left Side



LL Motor  
Shaft Left Side



R Motor  
Right Side



RU Motor  
Right Upper Side



RD Motor  
Right Lower Side

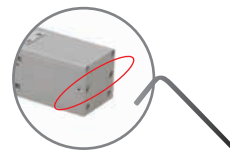


RT Reducer With  
Motor Right Side



RR Motor  
Shaft Right Side

## Adjustable belt tension



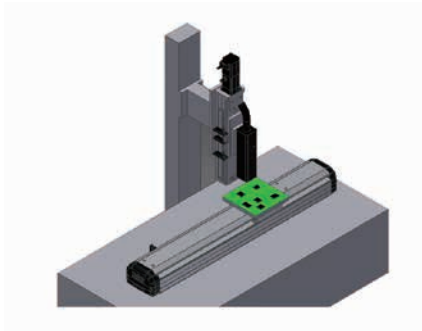
Adjust the belt tension without disassembling the unit.

# Applications Examples - Single Axis

## Suitable Industry : PCB/CD/DVD

### Spray-Printing device for PCB substrate boards

- Fix the substrate board onto the electric cylinder. Use the feature "equal-speed sliding" to execute the spray printing.

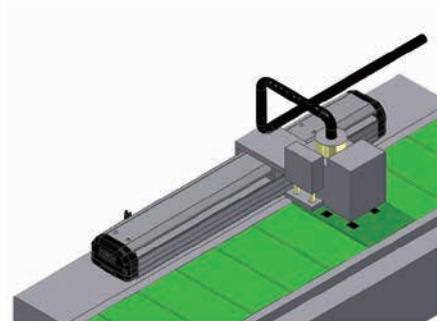


- Use models  
GTH8 / ETH14

→P147

### Surface cleaning device for circuit boards

- Fix the PLASMA onto the electric cylinder and move back and forth on the conveyor to do the surface cleaning for the circuit boards.

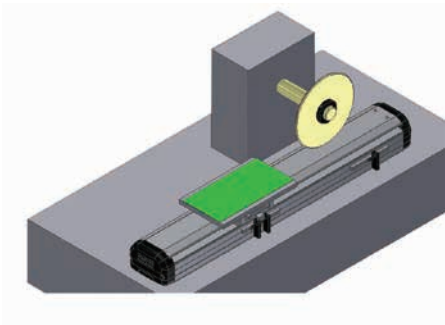


- Use models  
GTH8 / ETH14

→P147

### Cutting device for PCB printed circuit board

- Place the PCB board on the electric cylinder and do the cutting by using external cutting devices.

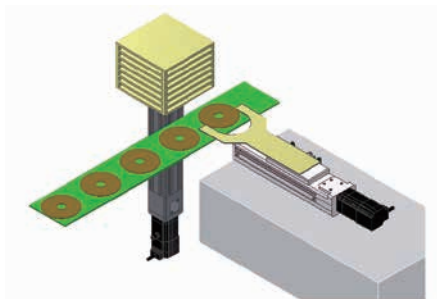


- Use models  
GTH8 / ETH14 / ETH17

→P147

### Compact disc receiving device

- Use the feature "multi-positioning" of electric cylinder to do loading and unloading of the disc box.



- Use models  
GCH5 / GCH8 / ECH14

→P337

**Suitable Industry : Semi-conductor/Packaging/Testing**

**IC printer device**

- Place the IC device on the electric cylinder. Use the feature: "equal-speed sliding" to execute the laser printing. Actuators are capable to adapt servo motor and stepping motor.

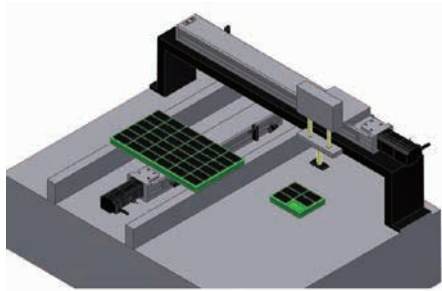


- Use models  
GTH5 / GTH8

→P129

**Aligning device for pick-and-place of IC boards**

- Install two single electric cylinder to combine a simple IC pick-and-place system.

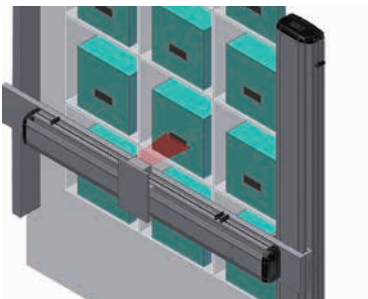


- Use models  
GCH5 / GCH8 / ECH14

→P337

**Barcode scanning device**

- Install the X-Y multi-axis system to automated warehouse to execute the barcode scanning.

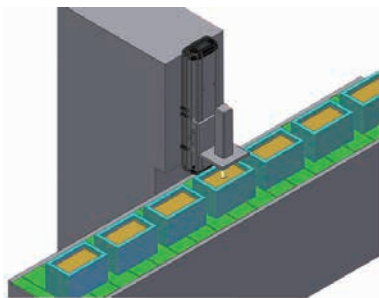


- Use models  
ETH14 / ETH17 / ETH22

→P169

**Fillings device**

- In order to adapt to filling of different products, we can execute the filling at different height of position by programmable feature.



- Use models  
GCH5 / GCH8 / ETH14

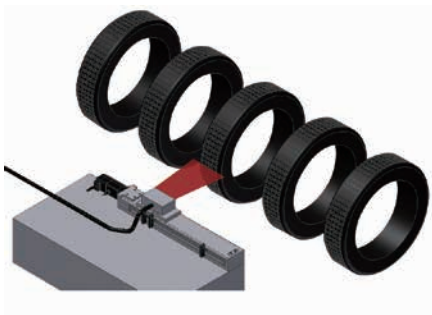
→P129

# Applications Examples - Single Axis

**Suitable Industry : Automotive/Component Processing/Assembling/Surface Processing/Mobile Phones**

## Tire surface inspection machine

- Mount the C.C.D on the electric cylinder. Use the feature: "equal-speed sliding" to check the defects on the tire surface and report to the on-site worker immediately.

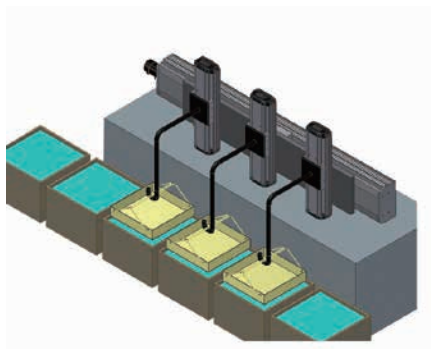


- Use models  
GTH5 / GTH8 / GTH8

→P129

## Mobile device for surface processing

- Mount the working piece on the electric cylinder and dip it into the solvents. Moving up and down, left and right at high speed to do the surface treatment processing.

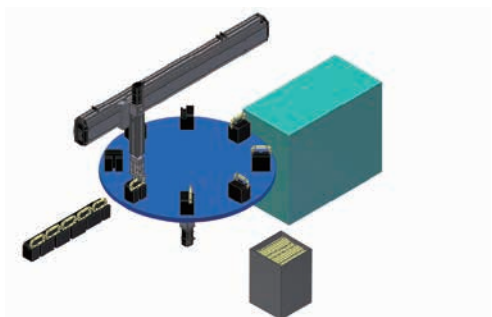


- Use models  
ETH14 / ETH17 / ETH22

→P169

## Assembling device on disc machine

- Combine two single actuators to an X-Y system. Then mount it onto the disc machine to do the components assembly.

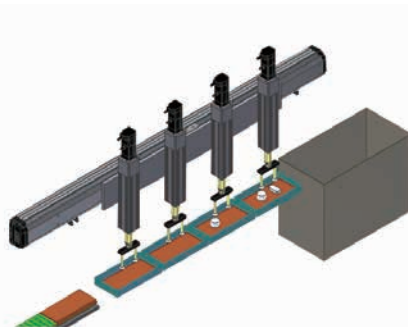


- Use models  
GTH8 / ETH14

→P147

## Assembling device for small components

- Use the feature multi-positioning of the electric cylinder to drive the suckers and cylinders to do the assembly of small components.



- Use models  
GTH5 / GTH8 / GTH8

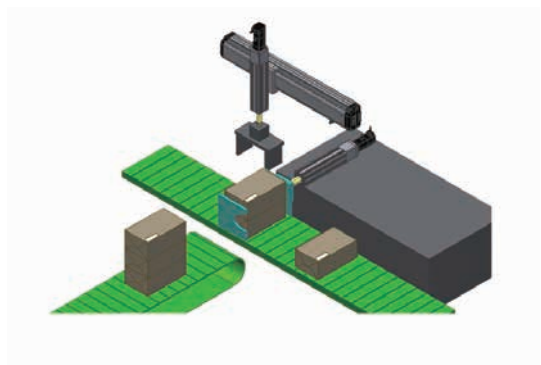
→P129



**Suitable Industry : Traditional Manufacturing/Food/Raw Material**

**Conveyance device for assembly lines**

- Combine two single actuators to an X-Y system and pick and place the items on the conveyor.

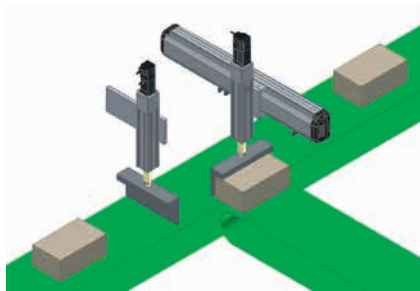


● Use models  
GTH8 / ETH14 / ETH17

→P147

**Separator device for assembly lines**

- Use actuators to categorize products on the assembly line with conveyors.

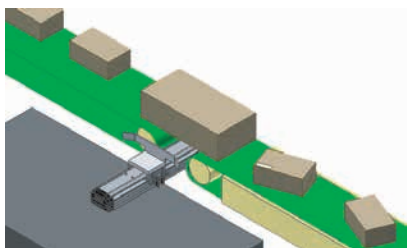


● Use models  
GTH8 / ETH14

→P147

**Aligning device for packaging**

- Use actuators to align products of different sizes on the moving conveyors, which substantially saves the working time.

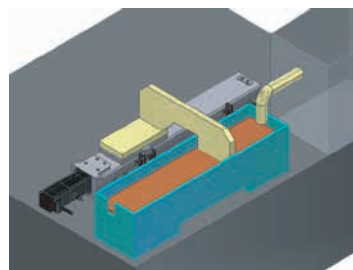


● Use models  
GTH8 / ETH14 / ETH17

→P147

**Leveling mechanism for solvent surfaces**

- Use the feature: "equal-speed sliding" to level the surface of glutinous solvents.



● Use models  
GTH5 / GCH5

→P129

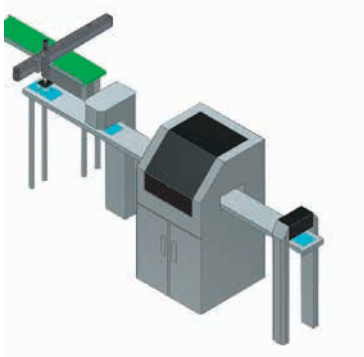
Structure	Built-in Guideway Ball Screw Type GTH / GTY
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

# Applications Examples - Multi Axis

## Suitable Industry : PCB Circuit Boards

### Conveyance device for circuit boards

- Combine two single actuators to an X-Z system and conveys the circuit board across left and right as well as up and down.

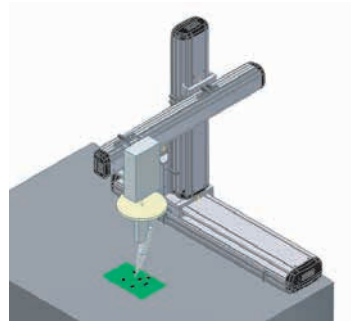


- Use models  
X axis ETH14 / Z axis GTH8

→P483

### Auto-soldering device

- Fix the soldering device onto the X-Y-Z system, which can solder for circuit board components.

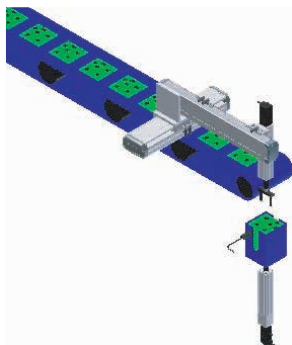


- Use models  
X axis ETH14 / Y axis GTH8 / Z axis ETH14

→P477

### Piling device for circuit boards

- Combine three single actuators into X-Y-Z system, which can be used in receiver mechanism for circuit board assembly lines.

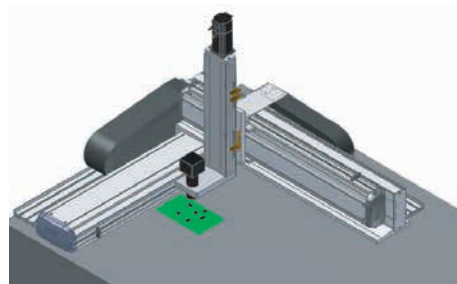


- Use models  
X axis ETH14 / Y axis GTH8 / Z axis GTH5

→P457

### Visual checking device for CCD imaging

- Fix the visual system onto the X-Y-Z system and execute the AOI checks of the appearance of PCB.



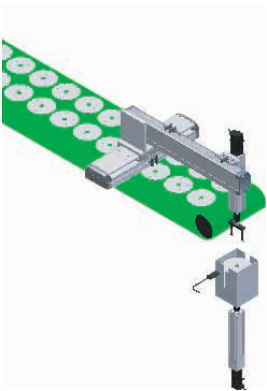
- Use models  
X axis ETH14 / Y axis GTH8 / Z axis GTH5

→P455

**Suitable Industry : CD/DVD/Mobile Phones**

**Piling device for compact discs**

- Combine three single actuators into X-Y-Z system, which can be used in receiver mechanism for compact disc assembly lines.

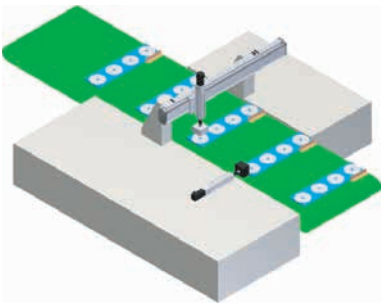


● Use models  
X axis ETH14 / Y axis GTH8 / Z axis GTH5

→P457

**Ultra-violet exposure device for compact discs**

- Combine three single actuators into a X-Z system, which can be used in ultra-violet exposure devices for compact discs.

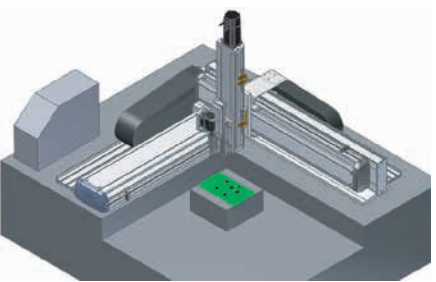


● Use models  
X axis GTH8 / Z axis GTH5

→P481

**Screw-tightening Device**

- Use the X-Y system for pick-and-place of screws.

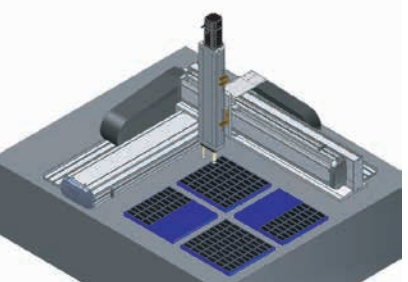


● Use models  
X axis GTH8 / Y axis GTH5

→P445

**Pick-and-place devices for small components**

- Combine three single actuators into X-Y-Z axes, which can be used in pick-and-place devices for small components.



● Use models  
X axis ETH14 / Y axis GTH8 / Z axis GTH5

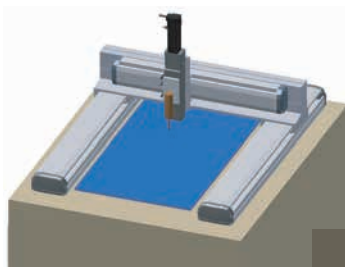
→P457

# Applications Examples - Multi Axis

## Suitable Industry : LCD/Automotive

### Adhesive dispenser device for large-size LCD glass substrate boards

- Combine two synchronous X-axis actuators and one Y-axis electric cylinders along with Z-axis into one system of high-speed Adhesive dispenser devices for LCD glass substrate boards.

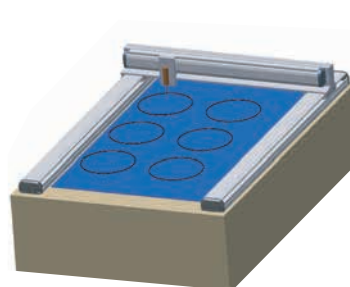


- Use models  
X axis ETH14-2pcs / Y axis GTH8 / Z axis GTH5

→P467

### Cutting for Glass Substrate Boards

- Combine two synchronous X-axis actuators with one Y-axis electric cylinders into one package of simple cutting mechanism for glass boards.

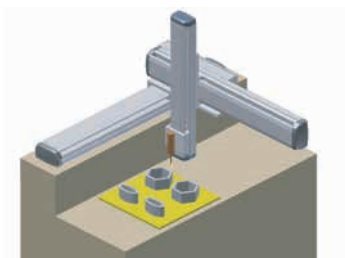


- Use models  
X axis ETH17-2pcs / Y axis ETH14

→P469

### Coating device for various small components

- Combine three uniaxial actuators into a X-Y-Z system that can perform dispensing and rubberizing operations with costs way cheaper than one rubberizing machine and utilize the rubberizing operation on the assembly line.

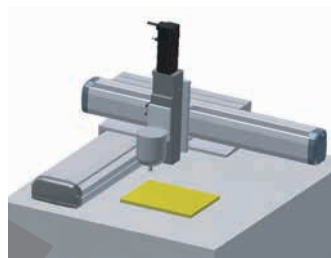


- Use model  
X axis ETH14、17 / Y axis GTH8 / Z axis GTH5 / GTH8

→P459

### Mobile device for spray coating

- Utilizes X-Y-Z axes to clean or spray coating.



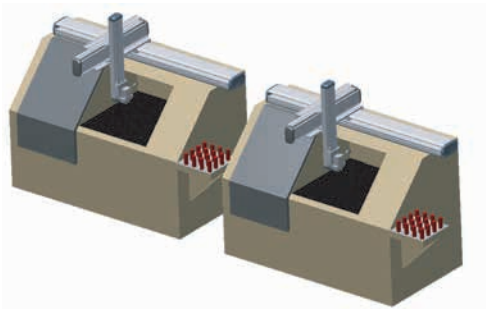
- Use models  
X axis ETH14、17 / Y axis GTH8 / Z axis GTH5 / GTH8

→P461

**Suitable Industry : Machine Processing/Solar/Food**

**Pick-and-place devices for processed parts from machine tools**

- Combine three single actuators into X-Z-Y system, that can be installed onto two or three CNC machine tools as the pick-and-place mechanism for loading and unloading of processed parts from multiple processing.

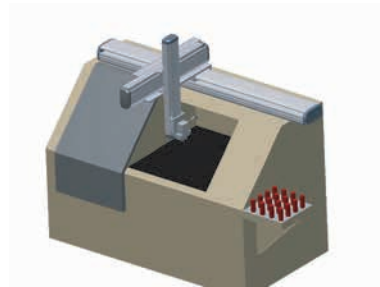


- Use models  
X axis ETH22 / Y axis ETH17 / Z axis ETH14

→P461

**Pick-and-place devices for processed parts from machine tools**

- Combine three single actuators into X-Y-Z system that can be installed onto CNC machine tools as the pick-and-place mechanism for loading and unloading of processed parts, which can save more cost than 6-axis mechanical arms.

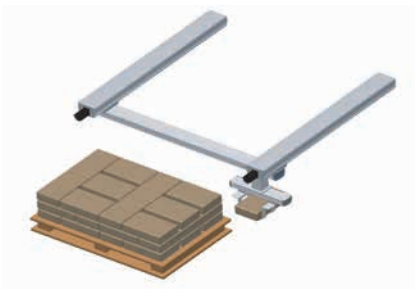


- Use models  
X axis ETH22 / Y axis ETH17 / Z axis ETH14

→P461

**Conveyance device for large items**

- Utilizes two synchronous X-axis actuators with one Y-axis motor slide to assemble into one package of conveyance device for large-size items, with cost saving more than 6-axis mechanical arms.

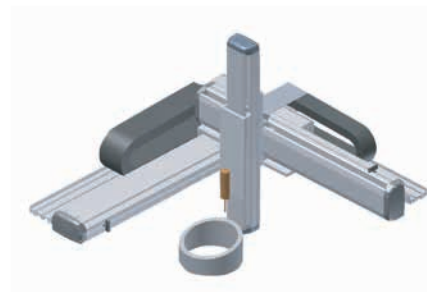


- Use models  
X axis ETH22-2pcs / Y axis ETH17

→P469

**3-Dimensional rubberizing device**

- Utilizes X-Y-Z axes to assemble into a cantilever adhesive dispenser that can perform 3-dimensional rubberizing.



- Use models  
X axis ETH14、17 / Y axis GTH8 /  
Z axis GTH5 / GTH8

→P457

# Product Index

Higher accuracy, various specifications suitable for every industry \ every production solution.

Product Item	New Product .....	017	Purchase Guide .....	043	Inner Structure .....	067
	Applications .....	029	Spec Index .....	047	Option/Special Order .....	075
	Product Index .....	037	Simple Selection Table .....	063	Ordering Method .....	079

## 1 GTH Series **Built-in Guideway** **Ball Screw Drive / Slider Type** ▶ P.084

**SMALL**  
GTH4  Width 44mm  
Max.stroke 800mm ..... 087  
Max.payload 25kg

**SMALL**  
GTH5  Width 54mm  
Max.stroke 800mm ..... 091  
Max.payload 30kg

**SMALL**  
GTH5S  Width 54mm  
Max.stroke 325mm ..... 091  
Max.payload 30kg

**MEDIUM**  
GTH8  Width 82mm  
Max.stroke 1100mm .... 095  
Max.payload 50kg

**MEDIUM**  
GTH8S  Width 82mm  
Max.stroke 450mm ..... 095  
Max.payload 50kg

**MEDIUM**  
GTH12  Width 120mm  
Max.stroke 1250mm .... 095  
Max.payload 110kg

## 2 GTY Series **Built-in Guideway** **Ball Screw Drive / Rod Type** ▶ P.100

**SMALL**  
GTY4  Width 44mm  
Max.stroke 500mm ..... 103  
Max.payload 25kg

**SMALL**  
GTY5  Width 54mm  
Max.stroke 600mm ..... 107  
Max.payload 30kg

**MEDIUM**  
GTY8  Width 82mm  
Max.stroke 800mm ..... 111  
Max.payload 50kg

## 3 ETH Series **Ball Screw Drive / Slider Type** ▶ P.116

**MEDIUM**  
ETH13  Width 135mm  
Max.stroke 1050mm .... 157  
Max.payload 70kg  
 

**MEDIUM**  
ETH14  Width 135mm  
Max.stroke 1050mm .... 169  
Max.payload 110kg

**LARGE**  
ETH17  Width 170mm  
Max.stroke 1250mm .... 181  
Max.payload 120kg  


**LARGE**  
ETH22  Width 220mm  
Max.stroke 1500mm ... 191  
Max.payload 150kg  


**LARGE**  
ETH17M  Width 170mm  
Max.stroke 2200mm ... 197  
Max.payload 120kg  


**LARGE**  
ETH22M  Width 220mm  
Max.stroke 2400mm ... 207  
Max.payload 130kg  


**4** **ETB Series**  
Belt Drive / Slider type ▶ P.246

**MEDIUM**  
ETB10  Width 102mm  
Max.stroke 2550mm ..... 265  
Max.payload 10kg

**MEDIUM**  
ETB14M  Width 135mm  
Max.stroke 3050mm ..... 271  
Max.payload 25kg

**LARGE**  
ETB17M  Width 170mm  
Max.stroke 3050mm ..... 277  
Max.payload 45kg

**LARGE**  
ETB22M  Width 220mm  
Max.stroke 3500mm ..... 283  
Max.payload 85kg



**5** **M Series (Eroupe type)**  
Belt Drive / Slider type ▶ P.290

**SMALL**  
MH65  Width 65mm  
Max.stroke 3000mm ..... 293  
Max.payload 15kg


**MEDIUM**  
MH80  Width 80mm  
Max.stroke 3000mm ..... 297  
Max.payload 25kg

**SMALL**  
MK65  Width 65mm  
Max.stroke 5000mm ..... 301  
Max.payload 60kg


**MEDIUM**  
MK85  Width 85mm  
Max.stroke 5000mm ..... 309  
Max.payload 100kg

**LARGE**  
MK110  Width 110mm  
Max.stroke 4800mm ..... 317  
Max.payload 200kg

**6** **ECH Series** **Clean Room**  
Ball Screw Drive / Slider Type ▶ P.394

**MEDIUM**  
ECH14  Width 135mm  
Max.stroke 1050mm ..... 365  
Max.payload 110kg



**LARGE**  
ECH17  Width 170mm  
Max.stroke 1250mm ..... 377  
Max.payload 120kg



**LARGE**  
ECH22  Width 220mm  
Max.stroke 1500mm ..... 387  
Max.payload 150kg



**7** **ECB Series** **Clean Room**  
Belt Drive / Slider Type ▶ P.394

**MEDIUM**  
ECB10  Width 102mm  
Max.stroke 2550mm ..... 413  
Max.payload 10kg

**MEDIUM**  
ECB14  Width 135mm  
Max.stroke 3050mm ..... 419  
Max.payload 25kg

**LARGE**  
ECB17  Width 170mm  
Max.stroke 4050mm ..... 425  
Max.payload 45kg



**LARGE**  
ECB22  Width 220mm  
Max.stroke 3500mm ..... 431  
Max.payload 85kg

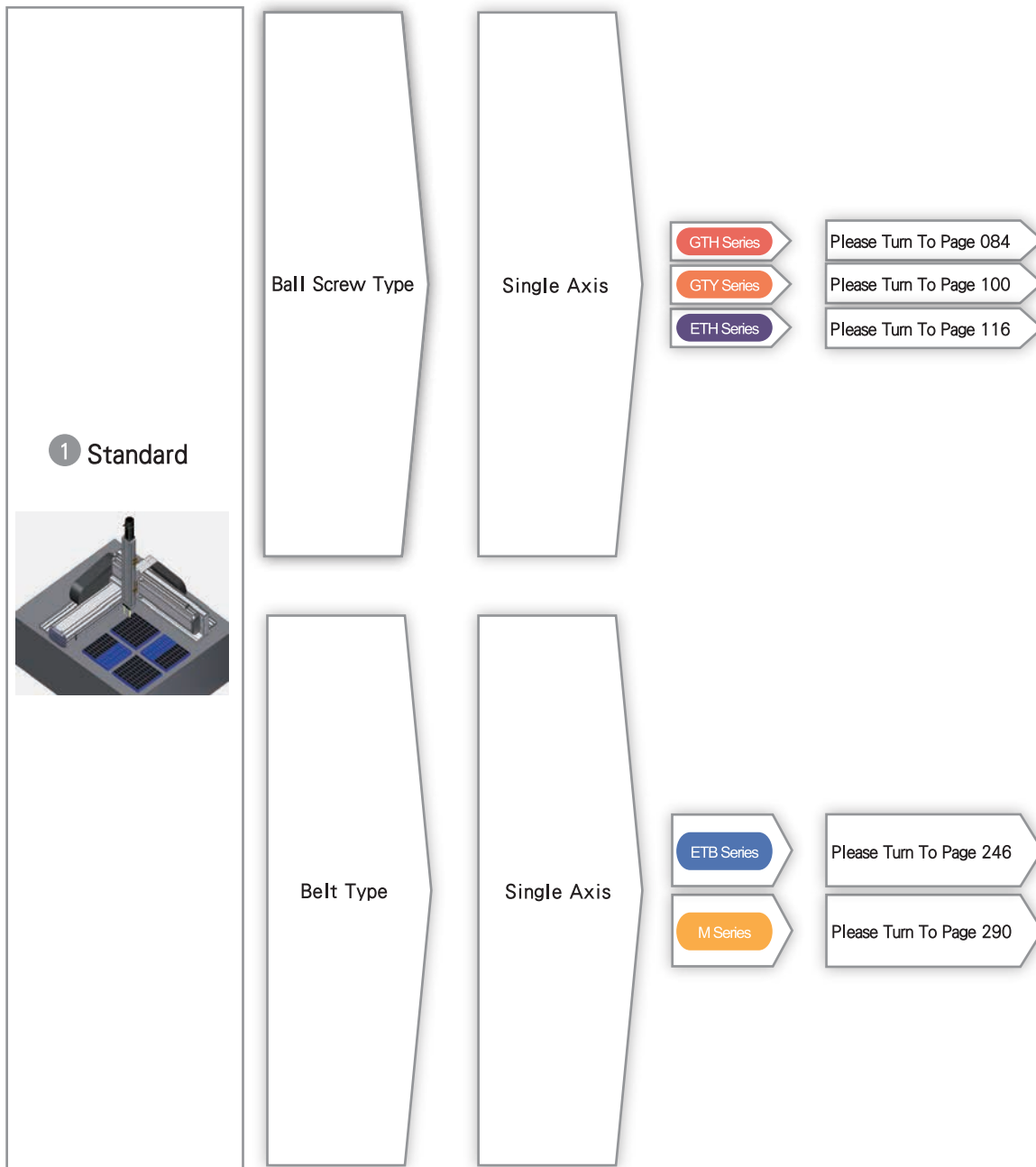


# Purchase Guide **By Environment**

Please choose the model according to your application environment.

Products are classified to two categories due to different application environments.

■ **Environment**      ■ **Driven Mode**      ■ **Axis Numbers**      ■ **Series Name**      ■ **Page**





■ Environment

■ Driven Mode

■ Axis Numbers

■ Series Name

■ Page

2 Clean Room



Ball Screw Type

Single Axis

ECH Series

Please Turn To Page 326

Belt Type

Single Axis

ECB Series

Please Turn To Page 394

# Purchase Guide **By Function**

According to model's function, we classify it to six categories.  
Please choose the model according to your requirements.

## Small Size 、 Economic

Model Specification		GTH4	GTH5
Exterior			
Maximum speed		600mm/s	1000mm/s
Repeatability		±0.01mm	±0.01mm
Stroke (50mm pitch)		50-800mm	50-800mm
Maximum payload	Horizontal	25kg	30kg
	Vertical	8kg	10kg
Page		Page 087	Page 091

## High Accuracy 、 Medium Payload

Model Specification		GTH5	GTH8	ETH13
Exterior				
Maximum speed		1000mm/s	1000mm/s	1600mm/s
Repeatability		±0.01mm	±0.01mm	±0.01mm
Stroke (50mm pitch)		50-800mm	50-1100mm	50-1050mm
Maximum payload	Horizontal	30kg	50kg	70kg
	Vertical	10kg	15kg	17kg
Page		Page 091	Page 095	Page 157

## High Payload 、 High Accuracy

Model Specification		ETH14	ETH17	ETH22	GTH12
Exterior					
Maximum speed		1600mm/s	2000mm/s	2000mm/s	1600mm/s
Repeatability		±0.01mm	±0.01mm	±0.01mm	±0.01mm
Stroke (50mm pitch)		50-1050mm	50-1250mm	50-1500mm	50-1250mm
Maximum payload	Horizontal	110kg	120kg	150kg	110kg
	Vertical	33kg	50kg	55kg	33kg
Page		Page 169	Page 181	Page 191	Page 191

## Long Stroke · Medium Payload

Model Specification	ETB10	MH65	MH80
Exterior			
Maximum speed	1600mm/s	2600mm/s	2550mm/s
Repeatability	±0.04mm	±0.1mm	±0.1mm
Stroke (50mm pitch)	50-2550mm	100-3000mm	100-3000mm
Maximum payload	Horizontal	10kg	15kg
	Vertical	—	—
Page	Page 265	Page 293	Page 297

## Long Stroke · High Accuracy

Model Specification	MK65	MK85	MK110
Exterior			
Maximum speed	1833mm/s	2000mm/s	1250mm/s
Repeatability	±0.1mm	±0.1mm	±0.1mm
Stroke (50mm pitch)	100-5000mm	100-5000mm	100-4800mm
Maximum payload	Horizontal	60kg	100kg
	Vertical	17kg	24kg
Page	Page 301	Page 309	Page 317

## Long Stroke · High Accuracy · High Payload

Model Specification	ETH22	ETH17M	ETH22M
Exterior			
Maximum speed	2000mm/s	1280mm/s	1600mm/s
Repeatability	±0.01mm	±0.01mm	±0.01mm
Stroke (50mm pitch)	50-1500mm	800-2200mm	850-2400mm
Maximum payload	Horizontal	150kg	120kg
	Vertical	55kg	40kg
Page	Page 191	Page 197	Page 207

## Spec Index - Built-in Guideway Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	GTH4	50W	44	±0.01	10	2	25	8	100
							6	20	5	300
							12	12	2	600
		GTH5	100W	44	±0.01	10	2	25	8	100
							6	20	8	300
							12	12	3.5	600
		GTH5	100W	54	±0.01	12	2	30	10	100
							5	30	10	250
							10	15	5	500
		GTH8	200W	82	±0.01	16	5	50	15	250
							10	30	8	500
			400W	20	18	3	1000			
		GTH12	400W	120	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600

### GTH Series Double-carrier type

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	GTH5S	100W	54	±0.01	12	2	30	10	100
		GTH8S	200W	82	±0.01	16	5	50	15	250
			400W							

\*1 The maximum speed is based on the servo motor's maximum RPM of 3,000.

## Spec Index - Rod Type Built-in Guideway Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg) <sup>*3</sup>		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	GTY4	50W	44	±0.01	8	2	25	8	100
			100W				6	20	5	300
							12	12	2	600
		GTY5	100W	54	±0.01	12	2	30	10	100
							5	30	10	250
							10	15	5	500
		GTY8	200W	82	±0.01	16	20	10	2.5	1000
							5	50	15	250
			400W	10	30	8	500			
				20	12	2.5	1000			

\*1 The maximum speed is based on the servo motor's maximum RPM of 3,000.

\*3 Extra auxiliary LM guide is needed for this payload to bear the axial load.  
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Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> Speed																		Page												
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350			
100												90	80	70	60	50														087
300												270	240	210	180	150														091
600												540	480	420	360	300														095
100												90	80	70	60	50														095
300												270	240	210	180	150														095
600												540	480	420	360	300														095
100												90	80	70	60															095
200												270	200	175	150															095
500												450	400	350	300															095
1000												900	800	700	600															095
250																225	200	175	150	125	100	75								095
500																450	400	350	300	250	200	150								095
1000																900	800	700	600	500	400	300								095
250																				225	200	175	167	158	150	133	125	117		095
500																				450	400	350	333	317	30	267	250	233		095
1000																				900	800	700	667	633	600	533	500	467		095
1600																				1440	1280	1120	1067	1013	900	853	800	747		095

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> Speed																										Page				
Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675			
100																													087	
250																														091

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> Speed																		Page												
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1200	1300	1400	1500	1600			
100																													103	
300																														107
600																														107
100																														111
250																														111
500																														111
1000																														111
250																														111
500																														111
1000																														111

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# Spec Index - Standard Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Specs		Maximum Payload (kg) <sup>*3</sup>		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	ETH13	200W	135	±0.01	16	5	70	17	250
							10	47	12	500
							20	24	6	1000
							32	13	-	1600
		ETH13	400W	135	±0.01	16	5	70	17	250
							10	47	12	500
							20	24	6	1000
							32	13	-	1600
		ETH14	200W	135	±0.01	16	5	95	27	250
							10	75	18	500
							20	35	7	1000
							32	15	-	1600
		ETH14	400W	135	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600
		ETH17	400W	170	±0.01	20	5	120	40	250
							10	110	30	500
							20	75	14	1000
							40	22	7	2000
ETH17	750W	170	±0.01	20	5	120	50	250		
					10	120	40	500		
					20	83	25	1000		
					40	43	12	2000		
ETH22	750W	220	±0.01	25	5	150	55	250		
				25	10	150	45	500		
				25	25	105	20	1250		
				20	40	43	12	2000		

\*1 The maximum speed is based on the servo motor's maximum RPM of 3,000.

Structure
Bullin Guideway Ball Screw Type GTH / GTY
Belt Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>		Speed																Page														
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500		
250																225	200	175	150	125	100											157
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1250																	1125	1000	875	750	625	500										
2000																	1800	1600	1400	1200	1000	800	600									

\*2 Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# Spec Index - Standard Ball Screw Actuator

## Long Stroke Type

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Specs		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	ETH17M	400W	170	±0.01	16	5	110	33	200
							10	90	22	400
							20	40	10	800
							32	30	8	1280
		ETH17M	750W	170	±0.01	16	5	120	40	200
							10	95	25	400
							20	50	15	800
							32	35	12	1280
		ETH22M	750W	220	±0.01	20	5	130	50	200
							10	130	40	400
							20	85	25	800
							40	43	12	1600

\*1 The maximum speeds of the ETH17M and the ETH22M are based on the servo motor's maximum RPM of 2,400. Customizable for clean room type.



Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>																				Speed	Page								
Stroke	800	850	900	950	1000	1100	1200	1300	1400	1500	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400		
						200							175				150				125								197
						400							350				300				250								
						800							700				600				500								
						1280							1120				960				800								
						200							175				150				125								203
						400							350				300				250								
						800							700				600				500								
						1280							1120				960				800								
							200														175			150					
							400														350			300					
							800														700			600					
							1600														1400			1200					
																													207

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

## Spec Index - Standard Belt Actuator

Use Where	Driven Mode	Model Spec.	Reducer Mechanism	Motor Output (w)	Width (mm)	Repeatability (mm)	Belt Specs		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
							Belt Width (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Timing Belt	ETB10	2.5	100W	102	±0.04	15	32	10		1600
		ETB14M		200W	135	±0.04	22	40	25		2000
		ETB17M		400W	170	±0.04	30	40	45		2000
		ETB22M		750W	220	±0.04	50	40	85		2000

\*1 The maximum speed is based on the servo motor's maximum RPM of 3,000.

## Spec Index - Europe Type Belt Actuator

Use Where	Driven Mode	Model Spec.	Gearbox	Motor Output (w)	Width (mm)	Repeatability (mm)	Belt Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
							Belt Width (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Timing Belt	MH65	No	400W	65	±0.1	20	78	15		2600
		MH80		750W	80	±0.1	30	102	25		2550
		MK65	Yes	400W	65	±0.1	32	110 <sup>*3</sup>	60	17	1833 <sup>*3</sup>
		MK85		750W	85	±0.1	46	200 <sup>*3</sup>	100	24	2000 <sup>*3</sup>
		MK110		750W	110	±0.1	50	250 <sup>*3</sup>	200	50	1250 <sup>*3</sup>

\*1 The highest speed is based on the servo motor's maximum RPM of 3,000.

\*3 Lead \ the maximum speed depends on different gear ratio.

Stroke(mm) & Maximum Speed(mm/s) <span style="color: #00AEEF;">■</span> Speed																								Page					
Stroke	50	300	450	600	800	900	1050	1200	1350	1500	1650	1800	1950	2100	2150	2300	2550	2600	2750	3050	3150	3300	3500	3600	3750	3900	4050		
								1600																					265
									2000																				271
									2000																				277
									2000																				283

Stroke(mm) & Maximum Speed(mm/s) <span style="color: #FFD700;">■</span> Speed																								Page					
Stroke	100	700	900	1100	1300	1500	1700	1900	2100	2300	2500	2700	3000	3100	3300	3500	3700	3900	4100	4300	4500	4800	5000	5100	5300	5500	5700		
					2600																								293
					2550																								297
														1833															301
														2000															309
													1250																317

# Spec Index - Clean Room Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Clean Room	Ball Screw	ECH14	200W	135	±0.01	16	5	95	27	250
							10	75	18	500
							20	35	7	1000
							32	15	-	1600
		ECH14	400W	135	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600
		ECH17	400W	170	±0.01	20	5	120	40	250
							10	110	30	500
							20	75	14	1000
							40	22	7	2000
		ECH17	750W	170	±0.01	20	5	120	50	250
							10	120	40	500
							20	83	25	1000
							40	43	12	2000
ECH22	750W	220	±0.01	25	5	150	55	250		
					10	150	45	500		
					25	105	20	1250		
					40	43	12	2000		
ECH22	750W	220	±0.01	20	5	150	55	250		
					10	150	45	500		

\*1 The highest speed is based on the servo motor's maximum RPM of 3,000.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> <span style="background-color: #ADD8E6;"> </span> Speed																				Page														
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500				
								250								225	200	175	150	125	100											365		
								500								450	400	350	300	250	200													
								1000								900	800	700	600	500	400													
								1600								1440	1280	1120	960	800	640													
								250								225	200	175	150	125	100													
								500								450	400	350	300	250	200													
								1000								900	800	700	600	500	400													
								1600								1440	1280	1120	960	800	640													
								250										225	200	175	150		175	150										
								500										450	400	350	300		350	300										
								1000										900	800	700	600		700	600										
								2000										1800	1600	1400	1200		1400	1200										
								250										225	200	175	150		175	150										
								500										450	400	350	300		350	300										
								1000										900	800	700	600		700	600										
								2000										1800	1600	1400	1200		1400	1200										
								250										225	200	175	150		175	150										
								500										450	400	350	300		350	300										
								1250										1125	1000	875	750		875	750		625	500							
								2000										1800	1600	1400	1200		1400	1200		1000	800	600						

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

## Spec Index - Clean Room Belt Actuator

Use Where	Driven Mode	Model Spec.	Reducer Mechanism	Motor Output (w)	Width (mm)	Repeatability (mm)	Belt Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
							Belt Width (mm)	Lead (mm)	Horizontal	Vertical	
Clean Room	Timing Belt	ECB10	2.5	100W	102	± 0.04	15	32	10		1600
		ECB14		200W	135	± 0.04	22	40	25		2000
		ECB17		400W	170	± 0.04	30	40	45		2000
		ECB22		750W	220	± 0.04	50	40	85		2000

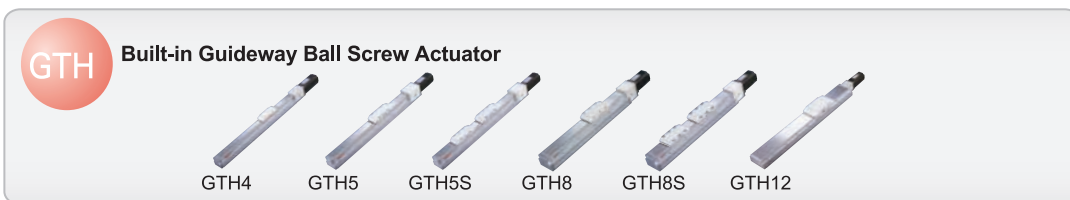
\*1 The highest speed is based on the servo motor's maximum RPM of 3,000.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>		Speed	Page																										
Stroke	50	300	450	600	800	900	1050	1200	1350	1500	1650	1800	1950	2100	2150	2300	2550	2600	2750	3050	3150	3400	3500	3600	3750	3900	4050		
					1600																								413
										2000																			419
																													425
																													431

<sup>\*2</sup>Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# Simple Selection Table - Single Axis Series

TOYO single-axis table provides a more complete line-up than ever !  
From the very compact size to extra long stroke.



Model Specification		GTH4	GTH5	GTH5S	GTH8	GTH8S	GTH12
Motor Output (W)		50/100	100	100	200/400	200/400	400
Repeatability (mm)		±0.01	±0.01	±0.01	±0.01	±0.01	±0.01
Ball Screw Lead (mm)		2/6/12	2/5/10/20	2	5/10/20	5	5/10/20/32
Maximum speed (mm/s)		100/300/600	100/250/500/1000	100	250/500/1000	250	250/500/1000/1600
Maximum payload (kg)	Horizontal	25/20/12	30/30/15/10	30	50/30/12	50	110/88/40/30
	Vertical	8/5/2	10/10/5/2.5	10	15/8/2.5	15	33/22/10/8
Stroke (mm)		50-800	50-800	50-800	50-1050	50-1050	50-1050
Page		087	091	091	095	095	095



Model Specification		GTY4	GTY5	GTY8
Motor Output (W)		50/100	100	200/400
Repeatability (mm)		±0.01	±0.01	±0.01
Ball Screw Lead (mm)		2/6/12	2/5/10/20	5/10/20
Maximum speed (mm/s)		100/300/600	100/250/500/1000	250/500/1000
Maximum payload (kg)	Horizontal	25/20/12	30/30/15/10	50/30/12
	Vertical	8/5/2	10/10/5/2.5	15/8/2.5
Stroke (mm)		50-500	50-600	50-800
Page		103	107	111



Model Specification		ETH13	ETH14		ETH17		ETH22
Motor Output (W)		200 / 400	200	400	400	750	750
Repeatability (mm)		±0.01	±0.01	±0.01	±0.01	±0.01	±0.01
Ball Screw Lead (mm)		5/10/20/32	5/10/20/32	5/10/20/32	5/10/20/40	5/10/20/40	5/10/25/40
Maximum speed (mm/s)		250/500/1000/1600	250/500/1000/1600	250/500/1000/1600	250/500/1000/2000	250/500/1000/2000	250/500/1250/2000
Maximum payload (kg)	Horizontal	70/47/24/13	95/75/35/15	110/88/40/30	120/110/75/22	120/120/83/43	150/150/105/43
	Vertical	17/12/6/-	27/18/7/-	33/22/10/8	40/30/14/7	50/40/25/12	55/45/20/12
Stroke (mm)		50-1050	50-1050	50-1050	50-1250	50-1250	50-1500
Page		157 / 163	169	175	181	187	191

Model Specification		ETH17M		ETH22M
Motor Output (W)		400		750
Repeatability (mm)		±0.01		±0.01
Ball Screw Lead (mm)		5/10/20/32		5/10/20/40
Maximum speed (mm/s)		200/400/800/1280		200/400/800/1600
Maximum payload (kg)	Horizontal	110/90/40/30		130/130/85/43
	Vertical	33/22/10/8		50/40/25/12
Stroke (mm)		800-2200		850-2400
Page		197		207





Model Specification	ETB10	ETB14M	ETB17M	ETB22M
Motor Output (W)	100	200	400	750
Repeatability (mm)	±0.04	±0.04	±0.04	±0.04
Ball Screw Lead (mm)	32	40	40	40
Maximum speed (mm/s)	1600	2000	2000	2000
Maximum payload (kg)	Horizontal	10	25	45
	Vertical	-	-	-
Stroke (mm)	50~2550	50~3050	50~3050	50~3500
Page	265	271	277	283



Model Specification	MH65	MH80	MK65	MK85	MK110	
Motor Output (W)	400	750	400	750	750	
Repeatability (mm)	±0.1	±0.1	±0.1	±0.1	±0.1	
Rpm/min	500/1000/1500/2000	500/1000/1500	3000	3000	3000	
Maximum speed (mm/s)	650/1300/1950/2600	850/1700/2550	1833/1100/785/550	2000/1428/1000	1250/833/625	
Ball Screw Lead (mm)	78	102	-	-	-	
Maximum payload (kg)	Horizontal	15/10/7/6	25/16/13	30/45/55/60	40/60/100	100/150/200
	Vertical	-	-	9/15/16/17	14/21/24	23/36/50
Stroke (mm)	100~3000	100~3000	100~5000	100~5000	100~4800	
Gearbox Ratio	-	-	3:1/5:1/7:1/10:1	5:1/7:1/10:1	10:1/15:1/20:1	
Page	293	297	301	309	317	



Model Specification	ECH14		ECH17		ECH22	
Motor Output (W)	200	400	400	750	750	
Repeatability (mm)	±0.01		±0.01		±0.01	
Ball Screw Lead (mm)	5/10/20/32	5/10/20/32	5/10/20/40	5/10/20/40	5/10/25/40	
Maximum speed (mm/s)	250/500/1000/1600	250/500/1000/1600	250/500/1000/2000	250/500/1000/2000	250/500/1250/2000	
Maximum payload (kg)	Horizontal	95/75/35/15	110/88/40/30	120/110/75/22	120/120/83/43	150/150/105/43
	Vertical	27/18/7/-	33/22/10/8	40/30/14/7	50/40/25/12	55/45/20/12
Stroke (mm)	50~1050	50~1050	50~1250	50~1250	50~1500	
Page	365	371	377	383	387	

Cleanliness Degree CLASS10  
Suction amount 30~100N / min



Model Specification	ECB10	ECB14	ECB17	ECB22
Motor Output (W)	100	200	400	750
Repeatability (mm)	±0.04	±0.04	±0.04	±0.04
Ball Screw Lead (mm)	32	40	40	40
Maximum speed (mm/s)	1600	2000	2000	2000
Maximum payload (kg)	Horizontal	10	25	45
	Vertical	-	-	-
Stroke (mm)	50~2550	50~3050	50~4050	50~3500
Page	413	419	425	431

Cleanliness Degree CLASS10  
Suction amount 30~100N / min

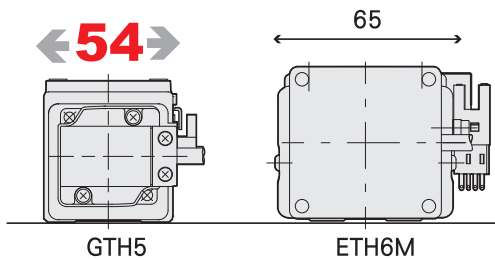
# Inner Structure - Built-in Guideway Ball Screw GTH Series

## Rigidity improved

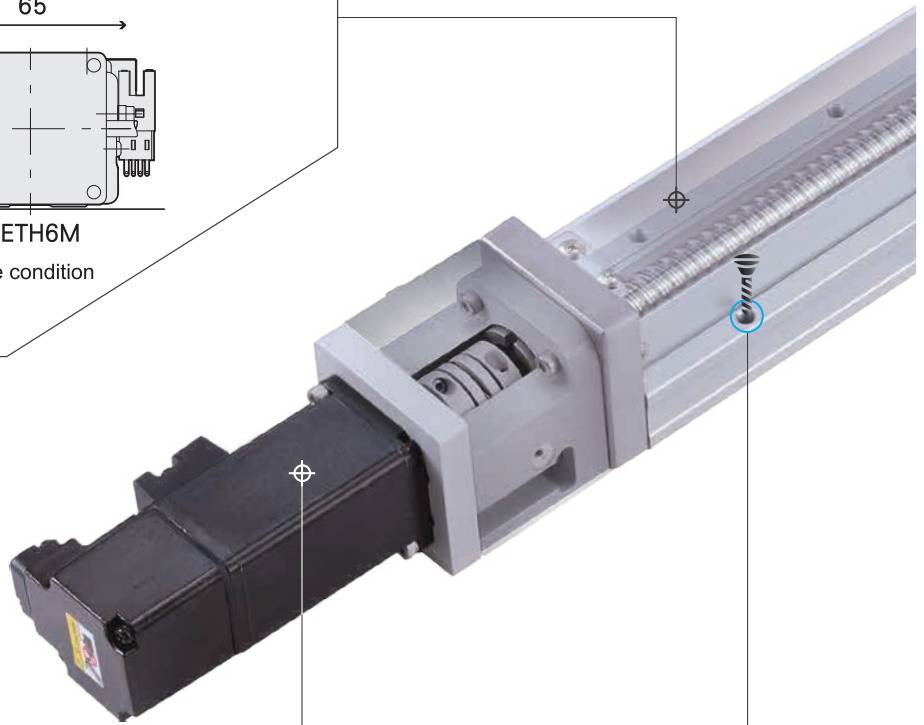
Stiff aluminum body cross section and one piece steel carriage improves rigidity.

## Smaller size

Reduced width that can fit in the compact environment.



Compare with ETH series at same condition (30 kg payload).



## Motor brand

Customer specified servo motor.

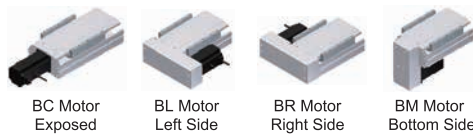
### Standard Suitable Motor brands

Mitsubishi	Panasonic	Yaskawa	Delta
------------	-----------	---------	-------

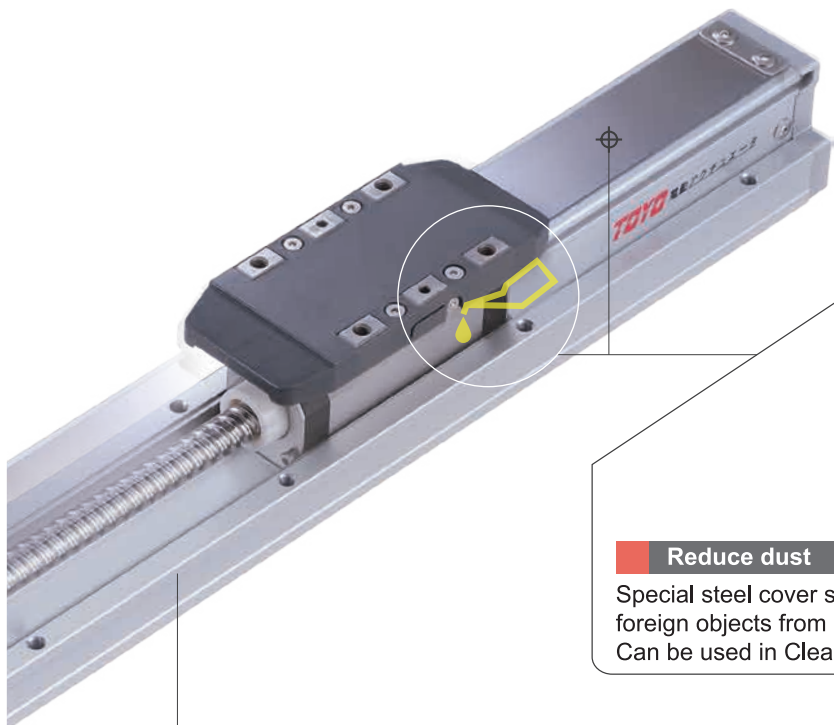
© Please consult with our sales personnel for other motor specifications.

## Motor install options

Multiple motor installation positions provides the flexibility for machine design.

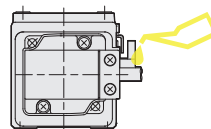


# Actuator



### Easy to maintain

External greasing design, easy maintenance without removing the cover.

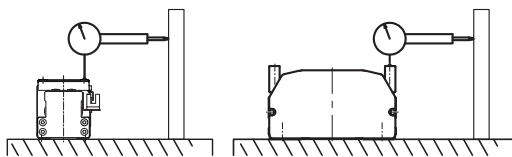


### Reduce dust

Special steel cover strip sealing design can prevent dirt and foreign objects from penetrating inside. Can be used in Clean Room environment.

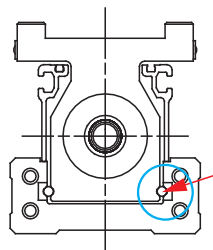
### Flat straightness

Built in linear rail design, Straightness and Flatness are highly improved to  $\pm 0.02\text{mm}$ .



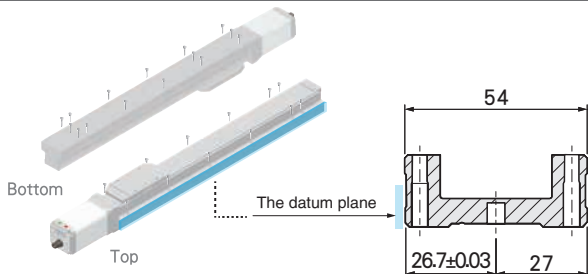
Straightness of GTH5 is  $\pm 0.02\text{mm}$ .  
\*Measure length is 800mm.

Straightness of ETH10 is  $\pm 0.05\text{mm}$ .  
\*Measure length is 1000mm.



### Easy assemble

- ① Can be fixed from the top and bottom without removing the cover.
- ② Mounting datum plane designed on the side of the body.
- ③ Built in Pin holes.



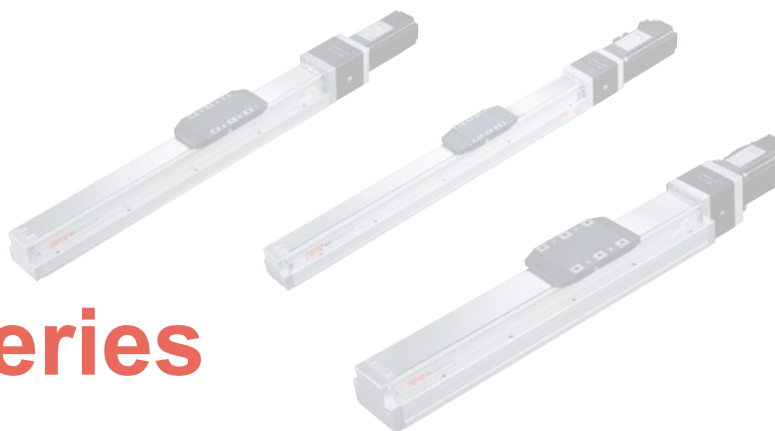
Structure	Built-in Guideway Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

**MEMO**

# Electric Actuator

# GTH Series

## Standard/Built-in Guideway Ball Screw Actuator



Structure	Built-in Guideway Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

### CONTENTS

#### Standard/Ball Screw

<b>SMALL</b>		Width 44mm Max. stroke 800mm .....087 Max. payload 25kg	<b>MEDIUM</b>		Width 120mm Max. stroke 1250mm .....095 Max. payload 110kg
<b>SMALL</b>		Width 54mm Max. stroke 800mm .....091 Max. payload 30kg			
<b>MEDIUM</b>		Width 54mm Max. stroke 325mm .....095 Max. payload 30kg			
<b>MEDIUM</b>		Width 82mm Max. stroke 1100mm .....095 50kg			
<b>MEDIUM</b>		Width 82mm Max. stroke 450m .....095 50kg			

## Spec Index - Built-in Guideway Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	GTH4	50W	44	±0.01	10	2	25	8	100
							6	20	5	300
							12	12	2	600
		GTH5	100W	44	±0.01	10	2	25	8	100
							6	20	8	300
							12	12	3.5	600
		GTH5	100W	54	±0.01	12	2	30	10	100
							5	30	10	250
							10	15	5	500
		GTH8	200W	82	±0.01	16	5	50	15	250
							10	30	8	500
			400W	20	18	3	1000			
		GTH12	400W	120	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600

### GTH Series Double-carrier type

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	GTH5S	100W	54	±0.01	12	2	30	10	100
		GTH8S	200W	82	±0.01	16	5	50	15	250
			400W							

\*1 The maximum speed is based on the servo motor's maximum RPM of 3,000.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> Speed																				Page									
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350		
						100						90	80	70	60	50													087
						300						270	240	210	180	150													
						600						540	480	420	360	300													
						100						90	80	70	60	50													091
						300						270	240	210	180	150													
						600						540	480	420	360	300													
					100							90	80	70	60														095
					200							270	200	175	150														
					500							450	400	350	300														
					1000							900	800	700	600														
				250												225	200	175	150	125	100	75							095
				500												450	400	350	300	250	200	150							
				1000												900	800	700	600	500	400	300							
				250													225	200	175	167	158	150	133	125	117				
				500													450	400	350	333	317	30	267	250	233				
				1000													900	800	700	667	633	600	533	500	467				
				1600													1440	1280	1120	1067	1013	900	853	800	747				

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup> Speed																											Page			
Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675			
								100																					087	
																														091



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **800mm**

Maximum Speed **600mm/s**

Motor Output **50W**

Ball Screw **Ø 10mm**

## Ordering Method

# GTH4 - L2 - 100 - BC - M05B - C4 - 0001

Model

Special Order No.

### Stroke

50-800mm

50 mm Pitch

\*For 50mm stroke see sensor limits below.

\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	50W	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

\*When the stroke is 50mm, the sensor installation has the following restrictions:

- 1.The home sensor and the limit sensor must be installed on different sides of the body.
- 2.The sensor trigger device must be installed on both sides of the device.

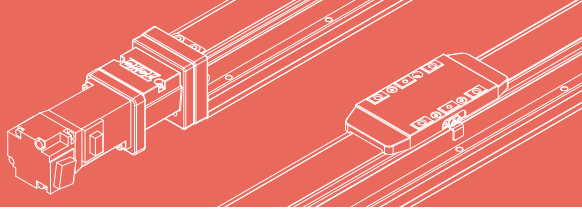
### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

2	2mm
6	6mm
12	12mm





Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

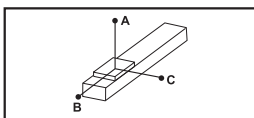
Actuator Specs	Ball Screw Lead (mm)	2	6	12		
	Maximum Speed (mm/s)	100	300	600		
	Max payload	Horizontal (kg)	25	20	12	
		Vertical (kg)	8	5	2	
	Rated Thrust (N)	424	141	71		
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	545	533	514
			2540 km of travel	147	144	139
		Static Horizontal (kg)	1387			
	Repeatability (mm)	±0.01				
	Allowable Input Torque (rpm)	3000				
	Start Torque (N.cm)	2				
	Lost Motion (mm)	0.1				
	Allowable Input Torque (N.m)	1.1				
	Maximum Acceleration (m/sec <sup>2</sup> )	10				
	Friction Coefficient	<0.01				
Stroke Pitch (mm)	50-800mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)	2	6	12	
	Ball Screw	Basic dynamic load rating Ca (N)	2730	2100	1400
		Basic static load rating Coa (N)	4330	3800	2540
	Linear Guide	Basic dynamic load rating C (KG)	720		
		Basic static load rating Co (KG)	1360		
	Fixed Bearing	Basic dynamic load rating Cor (N)	1730		
		Basic static load rating Cr (N)	3800		
	AC Servo Motor Output (W)	50			
	Ball Screw Ø (mm)	C7Ø10			
	Coupling (mm)	7X8			
	Home Sensor	Outside	EE-SX674(NPN)		

\*When the stroke is over 550mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

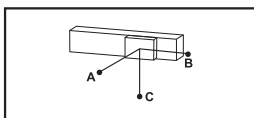
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



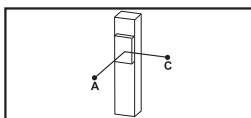
(Unit : mm)

Horizontal Installation	A	B	C
2 Lead	12kg	1000	80
	18kg	750	35
	25kg	500	23
6 Lead	10kg	550	53
	15kg	350	32
	20kg	250	22
12 Lead	8kg	305	59
	10kg	240	45
	12kg	195	37



(Unit : mm)

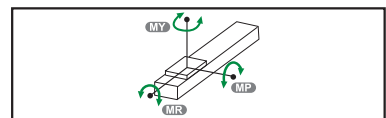
Wall Installation	A	B	C
2 Lead	12kg	80	55
	18kg	50	35
	25kg	32	23
6 Lead	10kg	72	52
	15kg	45	32
	20kg	31	22
12 Lead	8kg	75	59
	10kg	45	32
	12kg	31	22



(Unit : mm)

Vertical Installation	A	C
2 Lead	4kg	200
	8kg	100
	-	-
6 Lead	3kg	200
	5kg	120
	-	-
12 Lead	1.5kg	350
	2kg	260
	-	-

**Static Loading moment**



(Unit : N.m)

MY	79
MP	79
MR	116

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

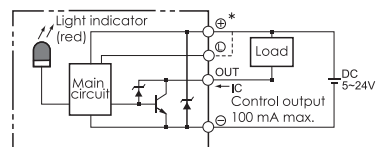
**50 km of travel** (Unit : N.m)

MY	6.8
MP	6.8
MR	10

**2540 km of travel** (Unit : N.m)

MY	1.8
MP	1.8
MR	2.6

**Sensor Layout**



**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	50	220	HG-KR053	MR-J4-10A
		With Brake (Vertical Type)	50	220	HG-KR053B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	50	220	MSMD5A2G1U	MADHT1505
		With Brake (Vertical Type)	50	220	MSMD5A2G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	50	220	ECMA-C1040FES	ASD-B20121-B
		With Brake (Vertical Type)	50	220	ECMA-C1040FFS	ASD-B20121-B

1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

GTH8S

GTH12

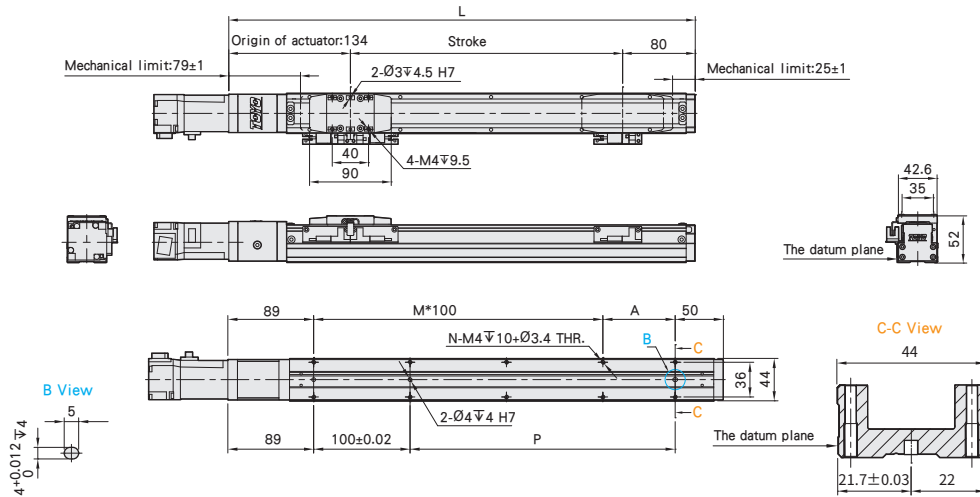
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



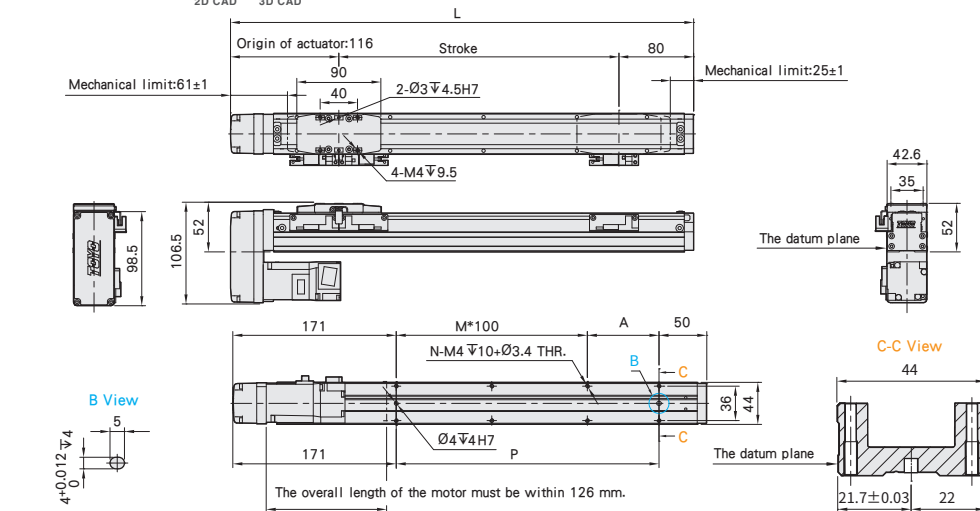
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.23	1.41	1.53	1.77	1.80	2.04	2.28	2.23	2.34	2.58	2.53	2.77	2.88	2.83	3.07	3.31

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

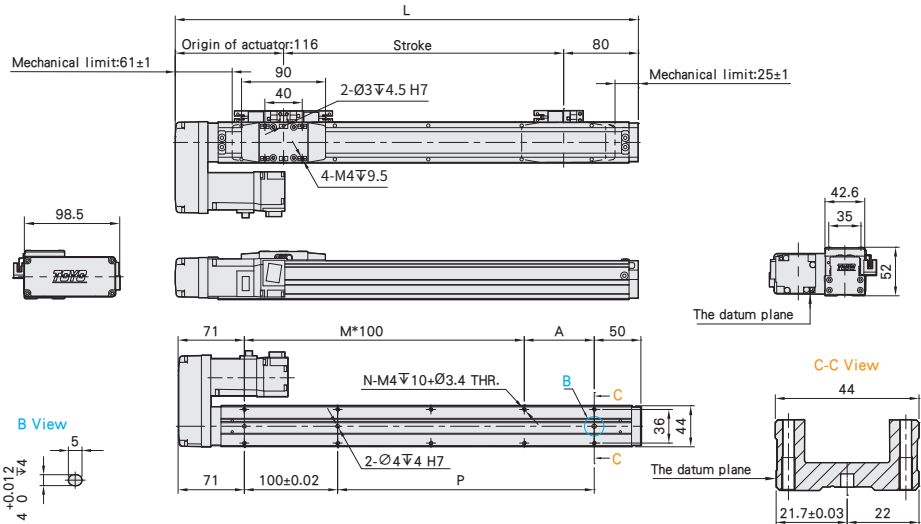
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



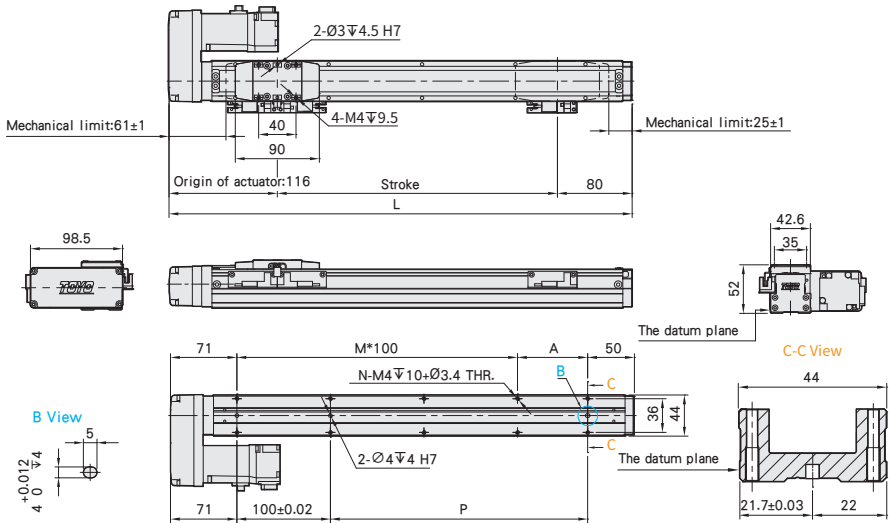
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **800mm**

Maximum Speed **600mm/s**

Motor Output **100W**

Ball Screw **Ø 10mm**

## Ordering Method

# GTH4 - L2 - 100 - BC - M10B - C4 - 0001

Model

Stroke

50-800mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

Special Order No.

Ball Screw Lead

2	2mm
6	6mm
12	12mm

Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

Motor Brand · Power Output

M	Mitsubishi	05	-	B
P	Panasonic	10	100W	
Y	Yaskawa	20	-	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

Home Sensor

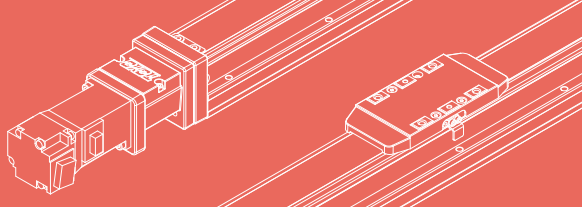
	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

\*When the stroke is 50mm, the sensor installation has the following restrictions:

- 1.The home sensor and the limit sensor must be installed on different sides of the body.
- 2.The sensor trigger device must be installed on both sides of the device.

Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

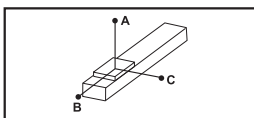
Actuator Specs	Ball Screw Lead (mm)		2	6	12	
	Maximum Speed (mm/s)		100	300	600	
	Max payload	Horizontal (kg)		25	20	12
		Vertical (kg)		8	8	3.5
	Rated Thrust (N)		424	141	71	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	545	533	514
			2540 km of travel	147	144	139
		Static Horizontal (kg)		1387		
	Repeatability (mm)		±0.01			
	Allowable Input Torque (rpm)		3000			
	Start Torque (N.cm)		2			
	Lost Motion (mm)		0.1			
	Allowable Input Torque (N.m)		1.1			
	Maximum Acceleration (m/sec <sup>2</sup> )		10			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		50-800mm / 50mm Pitch				

Parts Specs	Ball Screw Lead (mm)		2	6	12
	Ball Screw	Basic dynamic load rating Ca (N)	2730	2100	1400
		Basic static load rating Coa (N)	4330	3800	2540
	Linear Guide	Basic dynamic load rating C (KG)	720		
		Basic static load rating Co (KG)	1360		
	Fixed Bearing	Basic dynamic load rating Cor (N)	1730		
		Basic static load rating Cr (N)	3800		
	AC Servo Motor Output (W)		100		
	Ball Screw Ø (mm)		C7Ø10		
	Coupling (mm)		7X8		
	Home Sensor	Outside	EE-SX674(NPN)		

\*When the stroke is over 550mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

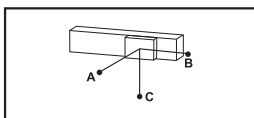
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



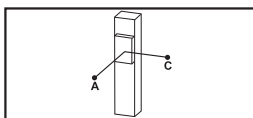
(Unit : mm)

Horizontal Installation	A	B	C
2 Lead	12kg	1000	80
	18kg	750	35
	25kg	500	23
6 Lead	10kg	550	53
	15kg	350	32
	20kg	250	22
12 Lead	8kg	305	59
	10kg	240	45
	12kg	195	37



(Unit : mm)

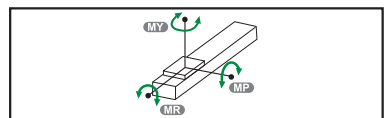
Wall Installation	A	B	C
2 Lead	12kg	80	55
	18kg	50	35
	25kg	32	23
6 Lead	10kg	72	52
	15kg	45	32
	20kg	31	22
12 Lead	8kg	75	59
	10kg	45	32
	12kg	31	22



(Unit : mm)

Vertical Installation	A	C
2 Lead	4kg	195
	8kg	100
	-	-
6 Lead	4kg	150
	8kg	75
	-	-
12 Lead	2kg	260
	3.5kg	150
-	-	-

**Static Loading moment**



(Unit : N.m)

MY	79
MP	79
MR	116

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

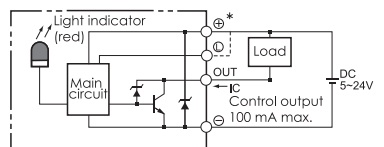
**50 km of travel** (Unit : N.m)

MY	6.8
MP	6.8
MR	10

**2540 km of travel** (Unit : N.m)

MY	1.8
MP	1.8
MR	2.6

**Sensor Layout**



**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
		With Brake (Vertical Type)	100	220	HG-KR13B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
		With Brake (Vertical Type)	100	220	MSMD012G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B
		With Brake (Vertical Type)	100	220	ECMA-C20401FS	ASD-B20121-B

1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

GTH8S

GTH12

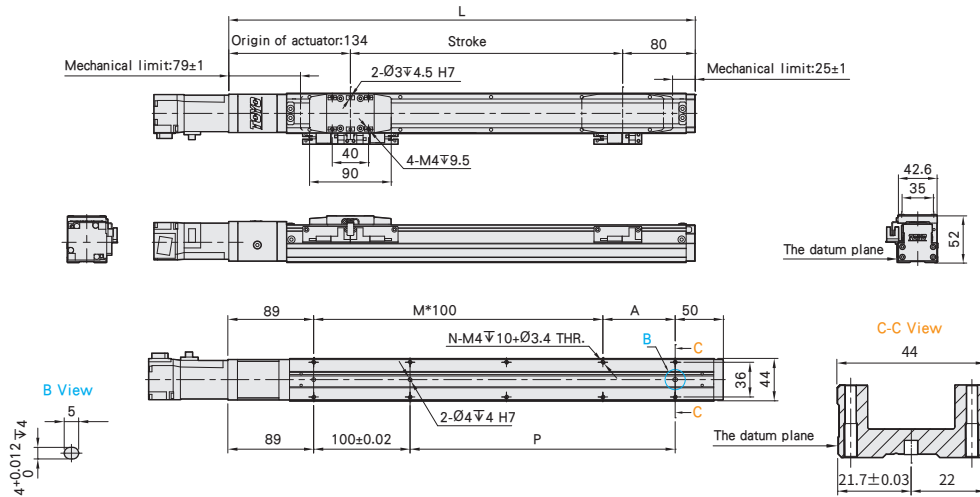
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



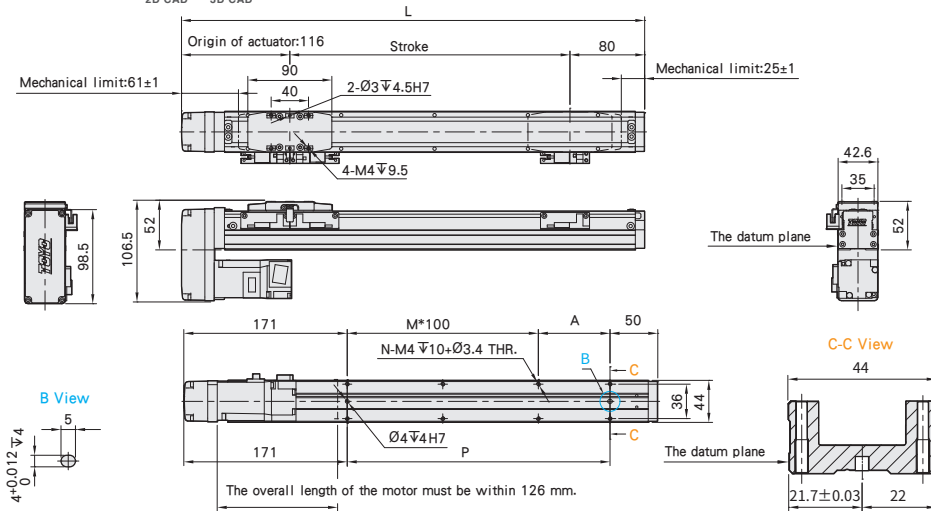
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.23	1.41	1.53	1.77	1.80	2.04	2.28	2.23	2.34	2.58	2.53	2.77	2.88	2.83	3.07	3.31

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

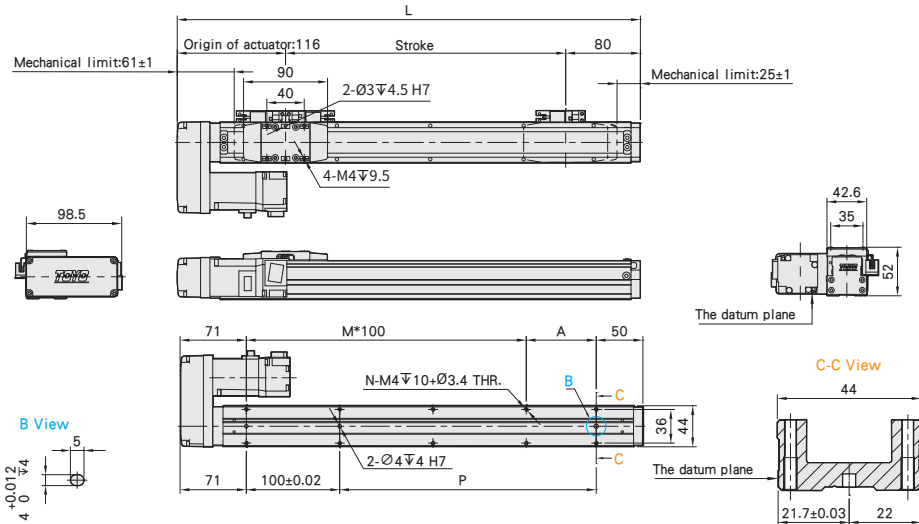
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



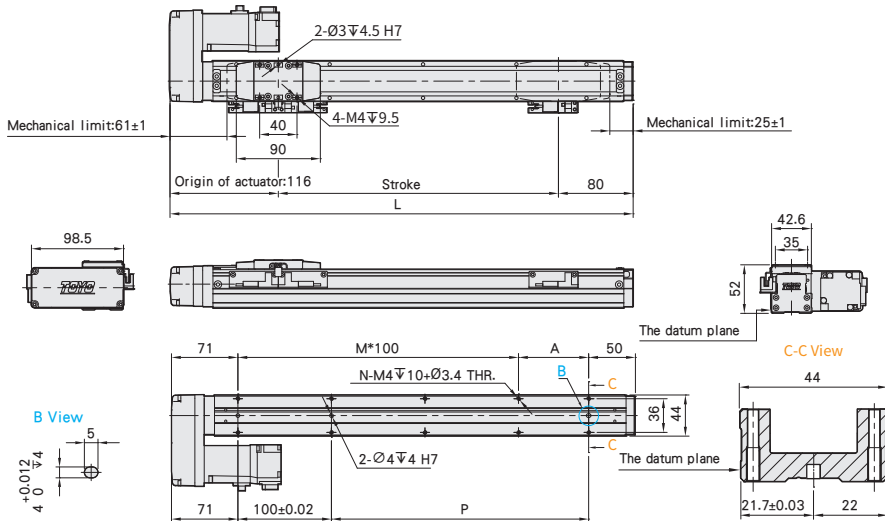
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	246	296	346	396	446	496	546	596	646	696	746	796	846	896	946	996
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.24	1.42	1.54	1.78	1.81	2.05	2.29	2.24	2.35	2.59	2.54	2.78	2.89	2.84	3.08	3.32

1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

GTH8S

GTH12

# GTH5

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **800mm**

Maximum Speed **1000mm/s**

Motor Output **100W**

Ball Screw **Ø 12mm**

## Ordering Method

# GTH5 - L5 - 100 - BC - M10B - C 4 - 0001

Model

Special Order No.

### Stroke

50-800mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	100W	
Y	Yaskawa	20	-	
T	Delta	40	-	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

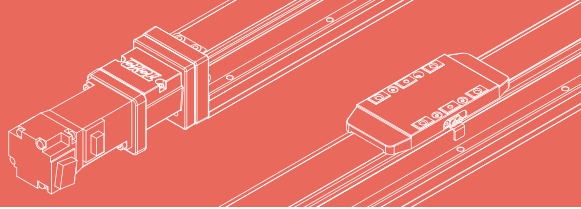
### Ball Screw Lead

02	2mm
05	5mm
10	10mm
20	20mm

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1.The home sensor and the limit sensor must be installed on different sides of the body.  
2.The sensor trigger device must be installed on both sides of the device.





Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

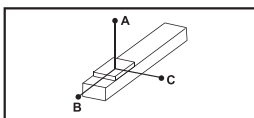
Actuator Specs	Ball Screw Lead (mm)		2	5	10	20	
	Maximum Speed (mm/s)		100	250	500	1000	
	Max payload	Horizontal (kg)	30	30	15	10	
		Vertical (kg)	10	10	5	2.5	
	Rated Thrust (N)		854	341	170	85	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	3277	5258	6298	7622
			2540 km of travel	8888	7789	12645	12854
		Static Horizontal (kg)	1734				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		7				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		1.1				
	Maximum Acceleration (m/sec <sup>2</sup> )		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-800mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		2	5	10	20
	Ball Screw	Basic dynamic load rating Ca (N)	3277	5258	6298	7622
		Basic static load rating Coa (N)	8888	7789	12625	16854
	Linear Guide	Basic dynamic load rating C (KG)	840			
		Basic static load rating Co (KG)	1700			
	Fixed Bearing	Basic dynamic load rating Cor (N)	1730			
		Basic static load rating Cr (N)	3800			
	AC Servo Motor Output (W)		100			
	Ball Screw Ø (mm)		C7Ø12			
	Coupling (mm)		7X8			
Home Sensor	Outside	EE-SX674(NPN)				

\*When the stroke is over 600mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

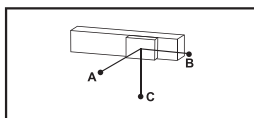
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



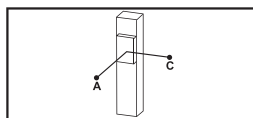
(Unit : mm)

Horizontal Installation	A	B	C
2 Lead	10kg	900	100 135
	20kg	700	45 60
	30kg	550	25 35
5 Lead	10kg	650	75 100
	20kg	440	32 45
	30kg	270	19 25
10 Lead	5kg	600	145 185
	10kg	370	70 85
	15kg	250	42 52
20 Lead	5kg	320	120 130
	8kg	220	70 80
	10kg	175	55 60



(Unit : mm)

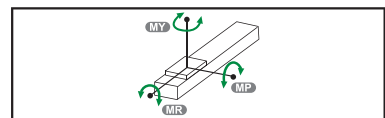
Wall Installation	A	B	C
2 Lead	10kg	135	100 900
	20kg	60	45 700
	30kg	37	27 550
5 Lead	10kg	100	75 650
	20kg	45	32 420
	30kg	25	19 260
10 Lead	5kg	180	145 600
	10kg	85	68 370
	15kg	52	42 250
20 Lead	5kg	130	120 320
	8kg	75	70 220
	10kg	60	55 170



(Unit : mm)

Vertical Installation	A	C
2 Lead	6kg	180 180
	8kg	135 135
	10kg	110 110
5 Lead	6kg	145 145
	8kg	110 110
	10kg	90 90
10 Lead	1kg	800 800
	3kg	260 260
	5kg	155 155
20 Lead	1kg	600 600
	2kg	300 300
	2.5kg	250 250

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	103
<b>MP</b>	103
<b>MR</b>	144

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	10.9
<b>MP</b>	10.9
<b>MR</b>	15.3

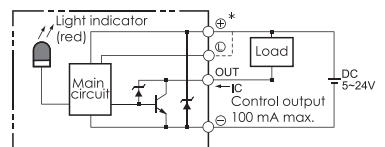
**2540 km of travel** (Unit : N.m)

<b>MY</b>	2.9
<b>MP</b>	2.9
<b>MR</b>	4

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
		With Brake (Vertical Type)	100	220	HG-KR13B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
		With Brake (Vertical Type)	100	220	MSMD012G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B
		With Brake (Vertical Type)	100	220	ECMA-C20401FS	ASD-B20121-B

**Sensor Layout**



1 axis  
**GTH**

GTH4

**GTH5**

GTH5S

GTH8

GTH8S

GTH12

## Motor Exposed / Motor Bottom Side

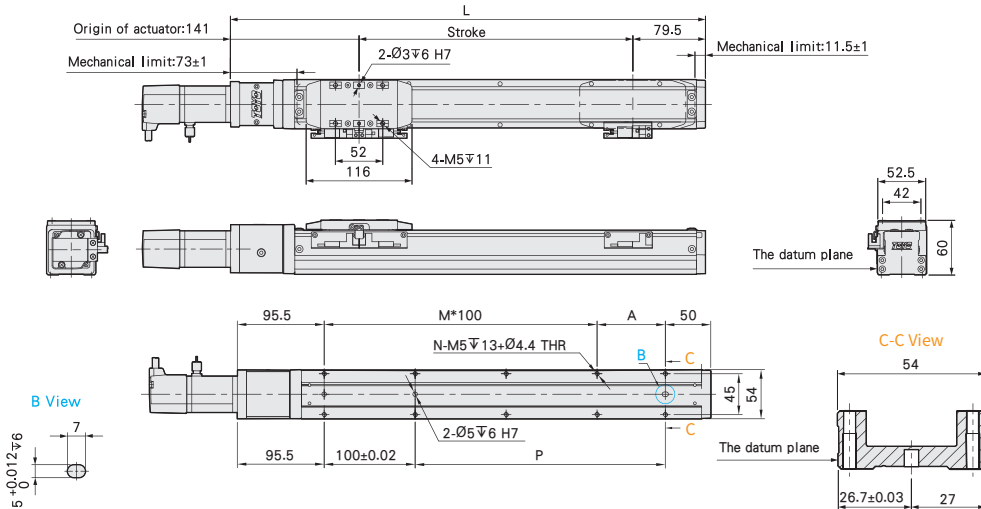
BC

Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.65	1.79	1.92	2.11	2.30	2.38	2.52	2.68	2.84	3.00	3.16	3.30	3.44	3.58	3.72	3.86

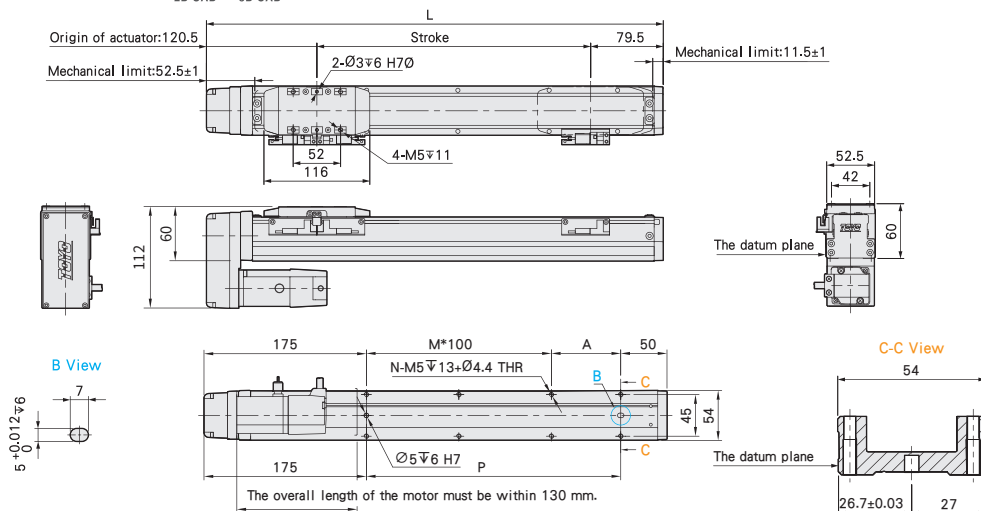
BM

Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00	3.15	3.30	3.45	3.60	3.75	3.87

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

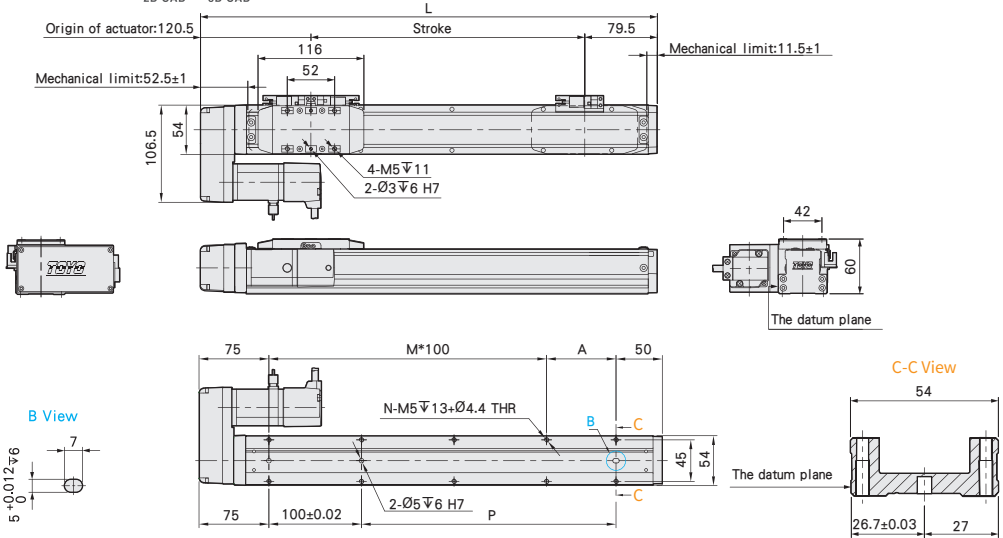
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



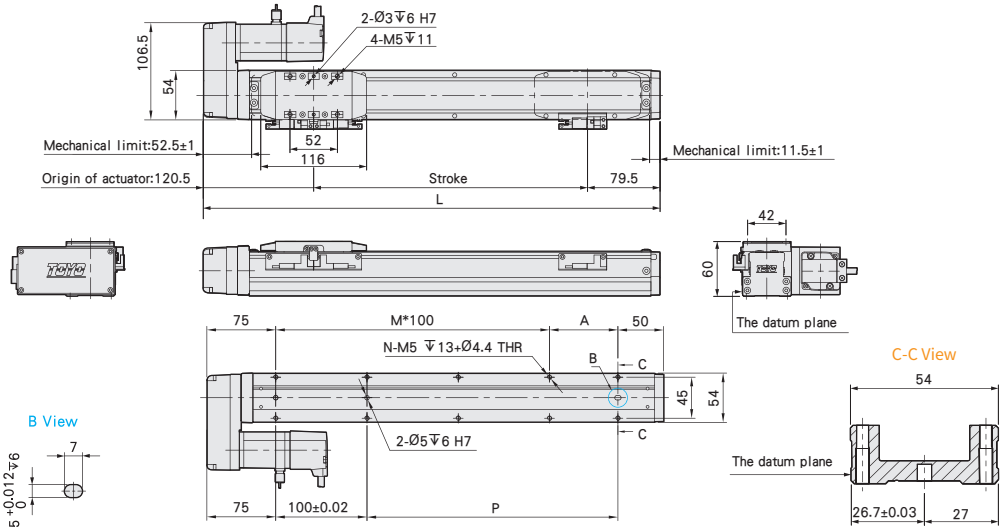
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00	3.15	3.30	3.45	3.60	3.75	3.87

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00	3.15	3.30	3.45	3.60	3.75	3.87

# GTH8

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke 1100mm

Maximum Speed 1000mm/s

Motor Output 200W

Ball Screw Ø16mm

## Ordering Method

# GTH8 - L10 - 100 - BC - M20B - C 4 - 0001

Model

Special Order No.

### Stroke

50-1100mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	200W	
T	Delta	40	-	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

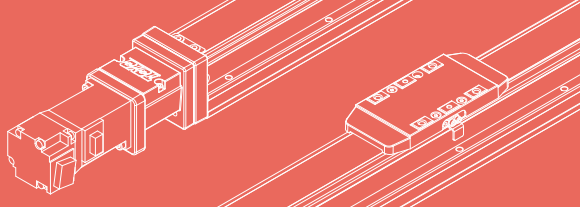
	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

05	5mm
10	10mm
20	20mm

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1. The home sensor and the limit sensor must be installed on different sides of the body.  
2. The sensor trigger device must be installed on both sides of the device.



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	
	Maximum Speed (mm/s)		250	500	1000	
	Max payload	Horizontal (kg)		50	30	18
		Vertical (kg)		15	8	3
	Rated Thrust (N)		683	341	174	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1608	1430	1287
			2540 km of travel	434	386	347
		Static Horizontal (kg)		3630		
	Repeatability (mm)		±0.01			
	Allowable Input Torque (rpm)		3000			
	Start Torque (N.cm)		10			
	Lost Motion (mm)		0.1			
	Allowable Input Torque (N.m)		2.2			
	Maximum Acceleration (m/sec <sup>2</sup> )		10			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		50-1100mm / 50mm Pitch				

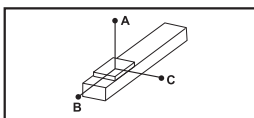
Parts Specs	Ball Screw Lead (mm)		5	10	20
	Ball Screw	Basic dynamic load rating Ca (N)	13538	8240	4073
		Basic static load rating Coa (N)	29940	17825	7534
	Linear Guide	Basic dynamic load rating C (KG)	1930		
		Basic static load rating Co (KG)	3630		
	Fixed Bearing	Basic dynamic load rating Cor (N)	2600		
		Basic static load rating Cr (N)	4750		
	AC Servo Motor Output (W)		200		
	Ball Screw Ø (mm)		C7 Ø16		
	Coupling (mm)		10X14/11 (Note 1)		
Home Sensor	Outside	EE-SX674(NPN)			

\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

\*Acceleration and deceleration value is set at 0.2 seconds.

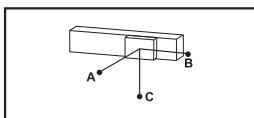
Note 1: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Allowable Overhang**



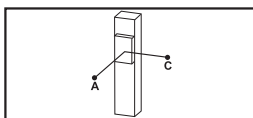
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	20kg	1560	237
	35kg	890	126
	50kg	550	82
10 Lead	10kg	1730	412
	20kg	839	196
	30kg	541	124
20 Lead	6kg	1213	493
	9kg	800	323
	18kg	592	238



(Unit : mm)

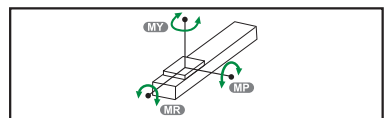
Wall Installation	A	B	C
5 Lead	20kg	214	1435
	35kg	113	845
	50kg	74	506
10 Lead	10kg	370	1400
	20kg	176	800
	30kg	112	495
20 Lead	6kg	444	760
	9kg	292	277
	18kg	214	544



(Unit : mm)

Vertical Installation	A	C
5 Lead	10kg	331
	15kg	220
	-	-
10 Lead	5kg	589
	8kg	368
	-	-
20 Lead	3kg	935
	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	318
<b>MP</b>	318
<b>MR</b>	626

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

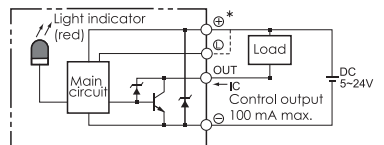
**50 km of travel** (Unit : N.m)

<b>MY</b>	32.7
<b>MP</b>	32.7
<b>MR</b>	54.1

**2540 km of travel** (Unit : N.m)

<b>MY</b>	8.6
<b>MP</b>	8.6
<b>MR</b>	14.2

**Sensor Layout**



**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADHT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADHT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C20602ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C20602FS	ASD-B20221-B

1 axis  
**GTH**

GTH4

GTH5

**GTH5S**

GTH8

GTH8S

GTH12

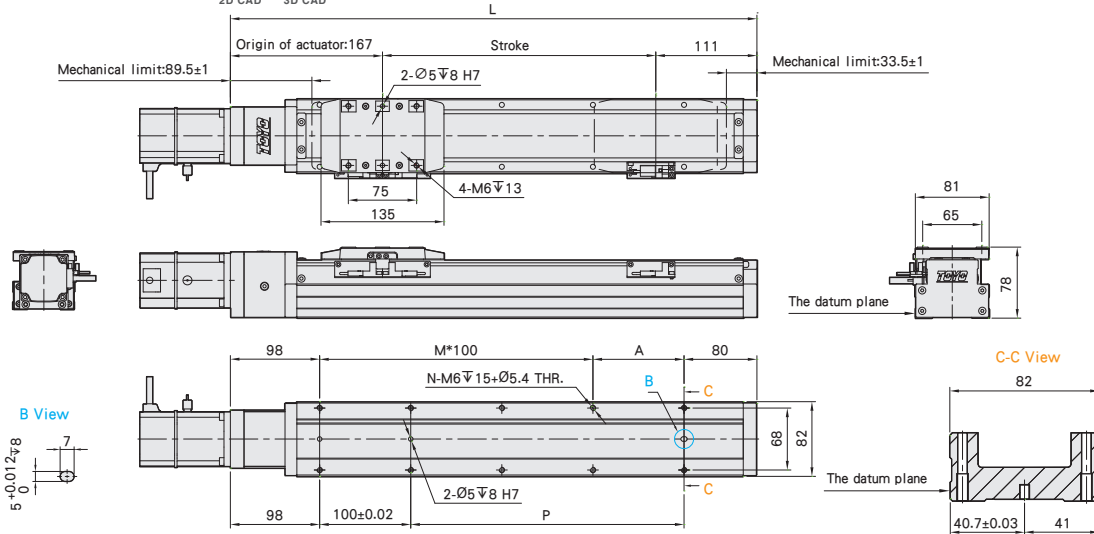
## Motor Exposed / Motor Bottom Side

Unit : mm

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



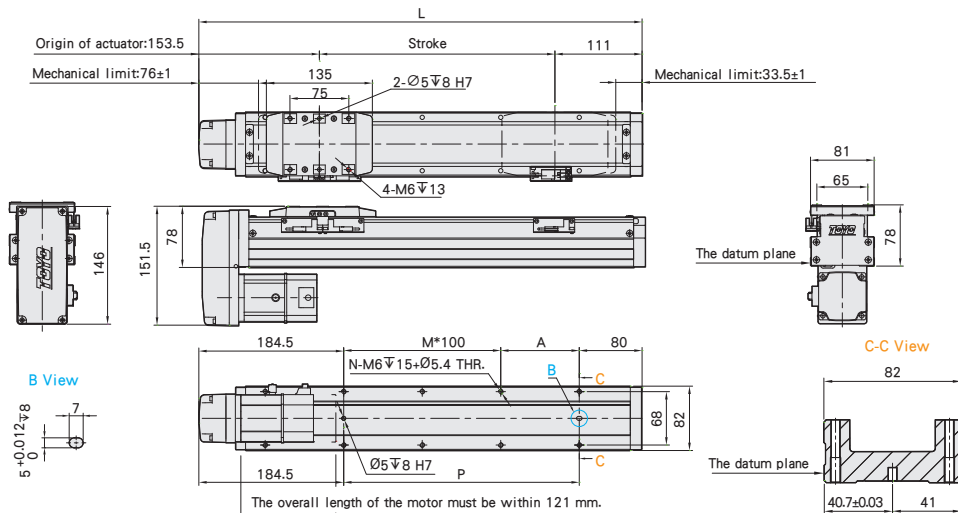
stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	328	378	428	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.07	4.38	4.69	5.00	5.34	5.68	6.04	6.39	6.72	7.04	7.39	7.74	8.07	8.40	8.71	9.04	9.37	9.69	10.01	10.33	10.65	10.97

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



Unit : mm

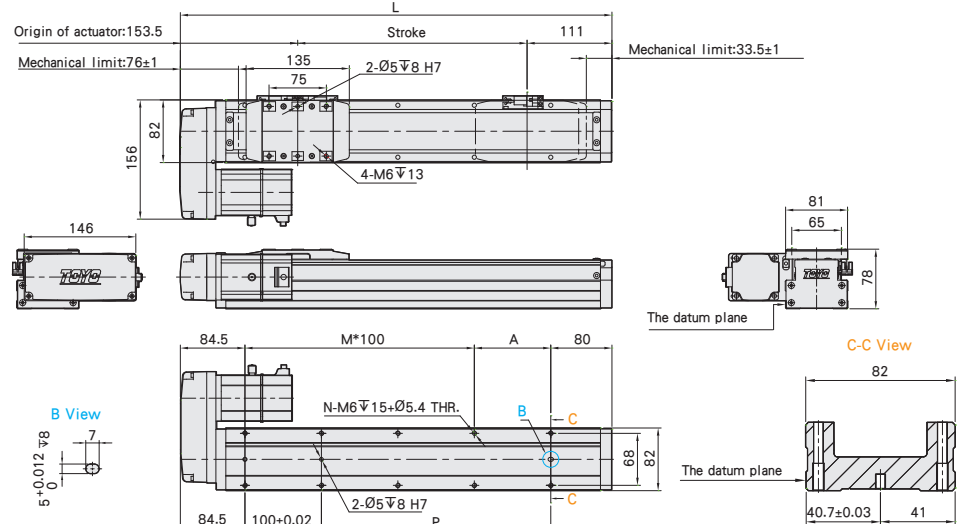


stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

**Motor Left Side / Motor Right Side**

**BL Motor Left Side**   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com) Unit: mm



Origin of actuator:153.5 Stroke 111 Mechanical limit:33.5±1

Mechanical limit:76±1

135 75 2-Ø5√8 H7 4-M6√13

156 82

146

81 65 78

The datum plane

84.5 M\*100 A 80

C-C View

82

The datum plane

68 82

N-M6√15+Ø5.4 THR. B C



2-Ø5√8 H7

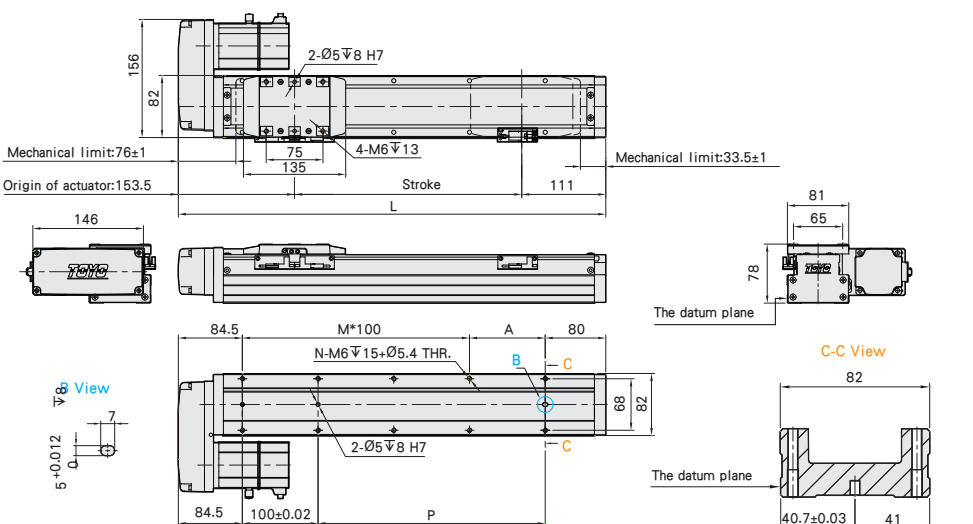
84.5 100±0.02 P

B View

5+0.012 √B 7 0

stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04

**BR Motor Right Side**   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com) Unit: mm



Mechanical limit:76±1

Origin of actuator:153.5 Stroke 111 Mechanical limit:33.5±1

135 75 2-Ø5√8 H7 4-M6√13

156 82

146

81 65 78

The datum plane

84.5 M\*100 A 80

C-C View

82

The datum plane

68 82

N-M6√15+Ø5.4 THR. B C

2-Ø5√8 H7

84.5 100±0.02 P

B View

5+0.012 √B 7 0

stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke 1100mm

Maximum Speed 1000mm/s

Motor Output 400W

Ball Screw Ø16mm

## Ordering Method

# GTH8 - L10 - 100 - BC - M40B - C 4 - 0001

Model

Special Order No.

### Stroke

50-1100mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	400W	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

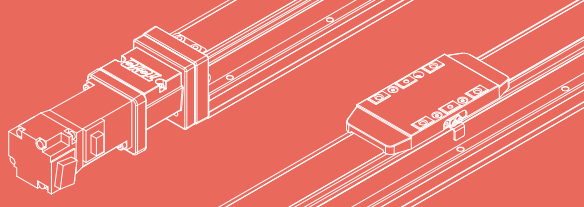
### Ball Screw Lead

05	5mm
10	10mm
20	20mm

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1. The home sensor and the limit sensor must be installed on different sides of the body.  
2. The sensor trigger device must be installed on both sides of the device.





Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

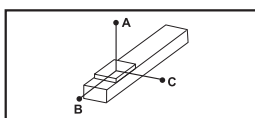
Actuator Specs	Ball Screw Lead (mm)		5	10	20	
	Maximum Speed (mm/s)		250	500	1000	
	Max payload	Horizontal (kg)	50	30	18	
		Vertical (kg)	15	8	3	
	Rated Thrust (N)		1388	694	347	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1608	1430	1287
			2540 km of travel	434	386	347
		Static Horizontal (kg)		3630		
	Repeatability (mm)		±0.01			
	Allowable Input Torque (rpm)		3000			
	Start Torque (N.cm)		10			
	Lost Motion (mm)		0.1			
	Allowable Input Torque (N.m)		2.2			
	Maximum Acceleration (m/sec <sup>2</sup> )		10			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		50-1100mm / 50mm Pitch				

Parts Specs	Ball Screw Lead (mm)		5	10	20
	Ball Screw	Basic dynamic load rating Ca (N)	13538	8240	4073
		Basic static load rating Coa (N)	29940	17825	7534
	Linear Guide	Basic dynamic load rating C (KG)	1930		
		Basic static load rating Co (KG)	3630		
	Fixed Bearing	Basic dynamic load rating Cor (N)	2600		
		Basic static load rating Cr (N)	4750		
	AC Servo Motor Output (W)		400		
	Ball Screw Ø (mm)		C7 Ø16		
	Coupling (mm)		10X14		
Home Sensor	Outside	EE-SX674(NPN)			

\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

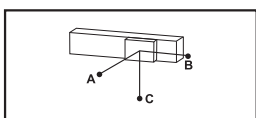
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



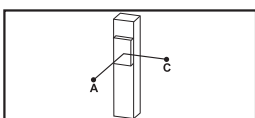
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	20kg	1560	237
	35kg	890	126
	50kg	550	82
10 Lead	10kg	1730	412
	20kg	839	196
	30kg	541	124
20 Lead	6kg	1213	493
	9kg	800	323
	18kg	592	238



(Unit : mm)

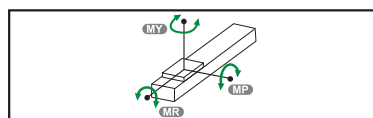
Wall Installation	A	B	C
5 Lead	20kg	214	1435
	35kg	113	845
	50kg	74	506
10 Lead	10kg	370	1400
	20kg	176	800
	30kg	112	495
20 Lead	6kg	444	760
	9kg	292	277
	18kg	214	544



(Unit : mm)

Vertical Installation	A	C
5 Lead	10kg	331
	15kg	220
	-	-
10 Lead	5kg	589
	8kg	368
	-	-
20 Lead	3kg	935
	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	318
<b>MP</b>	318
<b>MR</b>	626

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

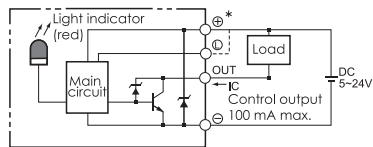
**50 km of travel** (Unit : N.m)

<b>MY</b>	32.7
<b>MP</b>	32.7
<b>MR</b>	54.1

**2540 km of travel** (Unit : N.m)

<b>MY</b>	8.6
<b>MP</b>	8.6
<b>MR</b>	14.2

**Sensor Layout**



**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

1 axis  
**GTH**

GTH4

GTH5

GTH5S

**GTH8**

GTH8S

GTH12

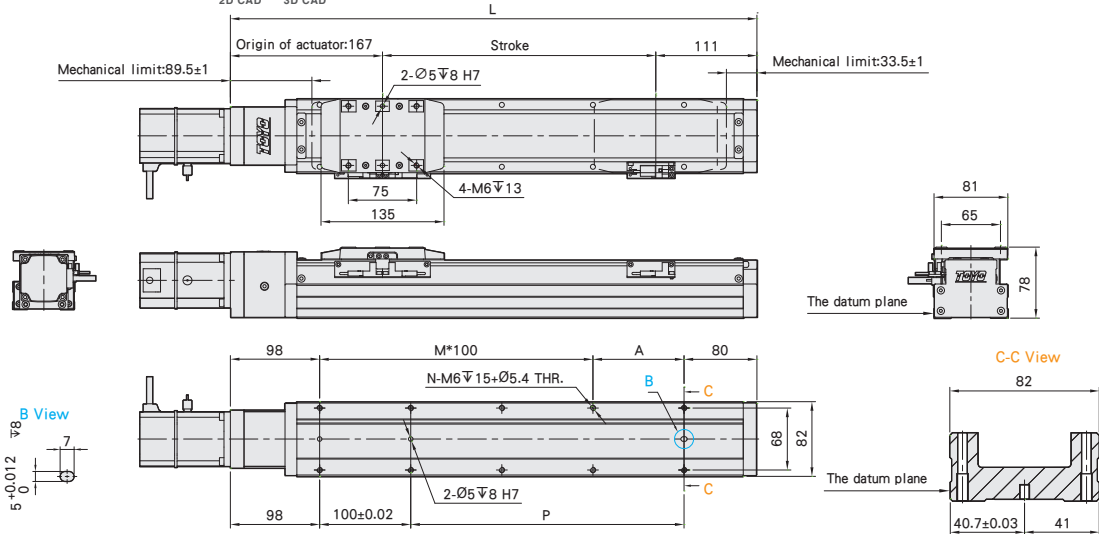
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



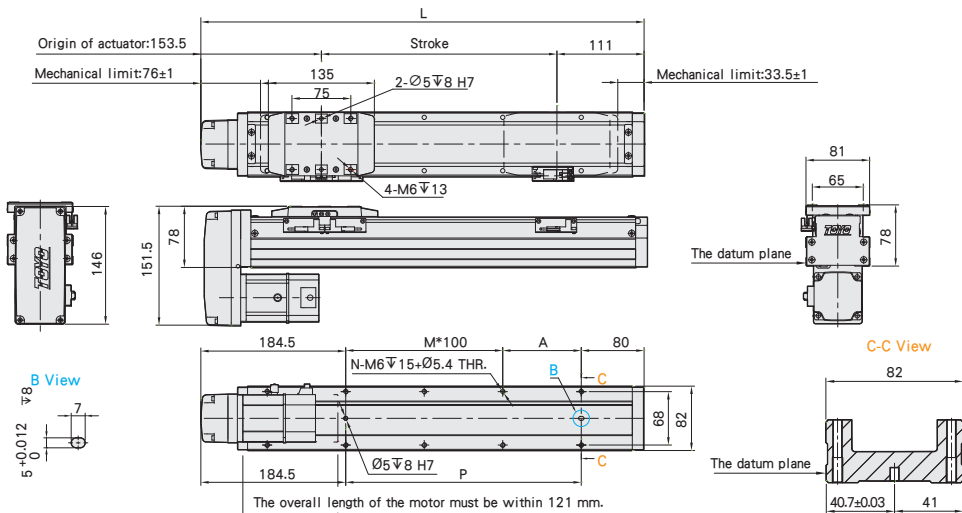
stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	328	378	428	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.07	4.38	4.69	5.00	5.34	5.68	6.04	6.39	6.72	7.04	7.39	7.74	8.07	8.40	8.71	9.04	9.37	9.69	10.01	10.33	10.65	10.97

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

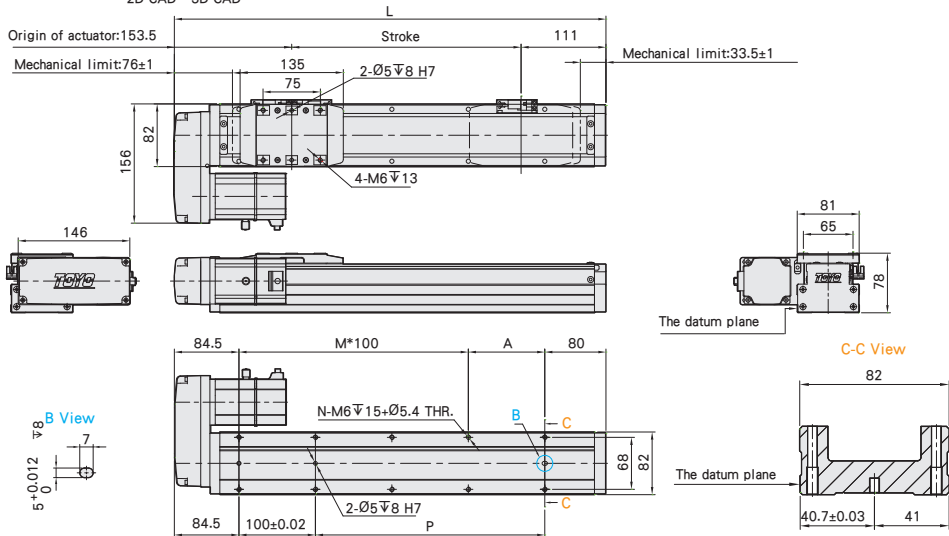
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



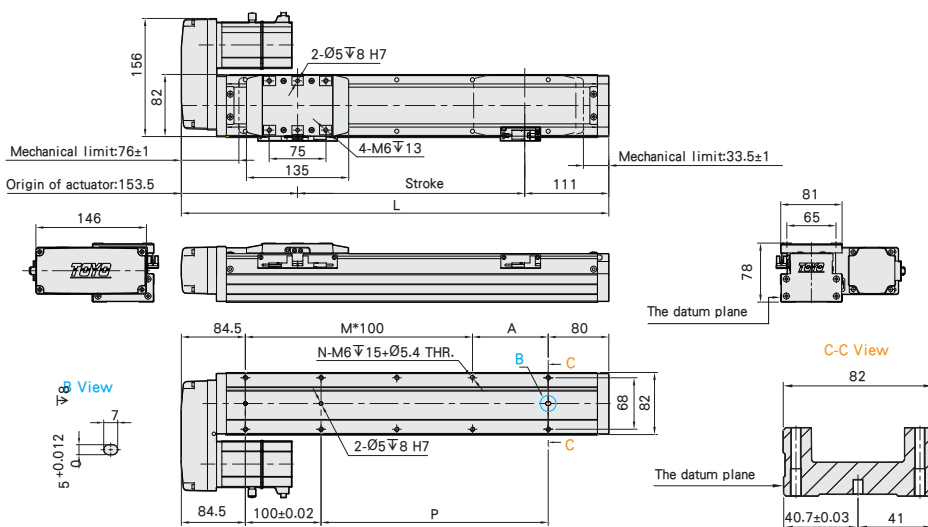
stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

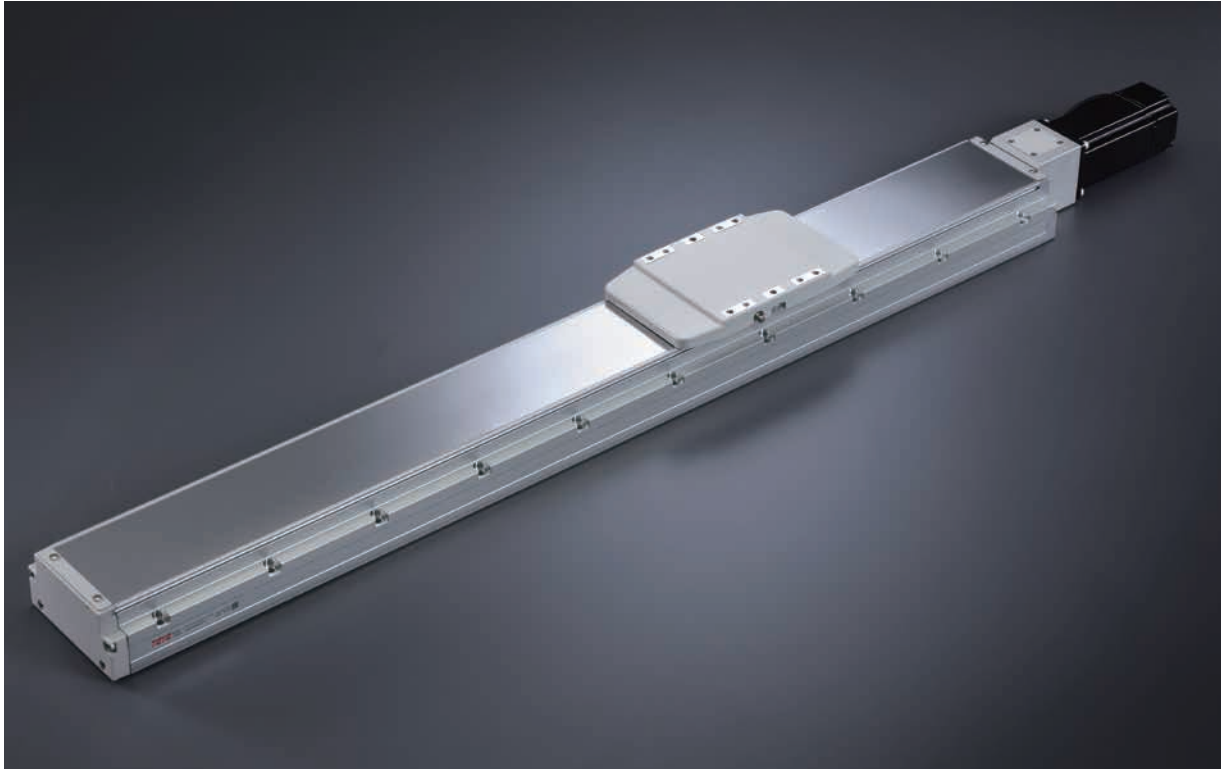


stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	314.5	364.5	414.5	464.5	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	4.03	4.37	4.71	5.05	5.39	5.72	6.05	6.38	6.68	7.01	7.35	7.68	8.02	8.35	8.69	9.03	9.36	9.70	10.03	10.37	10.71	11.04

# GTH12

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **1250mm**

Maximum Speed **1600mm/s**

Motor Output **400W**

Ball Screw **Ø 16mm**

## Ordering Method

# GTH12 - L5 - 100 - BC - M40B - C 4 - 0001

Model

Special Order No.

### Stroke

50-1250mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*10mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	400W	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

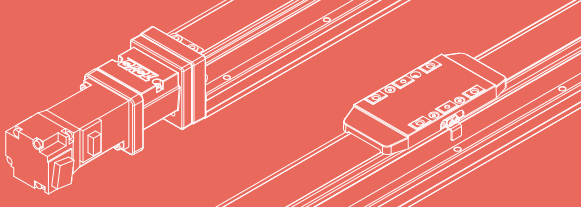
	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

05	5mm
10	10mm
20	20mm
32	32mm

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1. The home sensor and the limit sensor must be installed on different sides of the body.  
2. The sensor trigger device must be installed on both sides of the device.



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

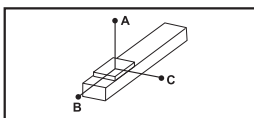
Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)	110	88	40	30	
		Vertical (kg)	33	22	10	8	
	Rated Thrust (N)		1388	694	347	218	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4608	4096	3687	3072
			2540 km of travel	1244	1106	995	830
		Static Horizontal (kg)	9540				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		10				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		3.1				
	Maximum Acceleration (m/sec <sup>2</sup> )		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1250mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	15686	8240	5435	4836
		Basic static load rating Coa (N)	37543	17835	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	5530			
		Basic static load rating Co (KG)	9540			
	Fixed Bearing	Basic dynamic load rating Cor (N)	2600			
		Basic static load rating Cr (N)	4750			
	AC Servo Motor Output (W)		400			
	Ball Screw Ø (mm)		C7Ø16			
	Coupling (mm)		10X14			
Home Sensor	Outside	EE-SX674(NPN)				

\*When the stroke is over 800mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

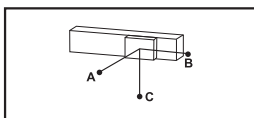
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



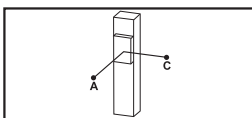
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	60kg	2850	340
	80kg	2100	250
	110kg	1500	170
10 Lead	30kg	2850	600
	50kg	1700	350
	88kg	950	190
20 Lead	10kg	3400	1400
	22kg	1650	620
	40kg	900	330
32 Lead	15kg	1100	550
	25kg	620	320
	30kg	520	260



(Unit : mm)

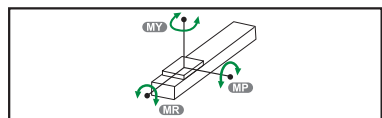
Wall Installation	A	B	C
5 Lead	55kg	280	3300
	75kg	200	2400
	110kg	130	1550
10 Lead	35kg	400	2500
	55kg	245	1550
	88kg	150	950
20 Lead	12kg	900	3000
	20kg	550	1800
	40kg	260	900
32 Lead	15kg	440	1050
	30kg	210	520
	-	-	-



(Unit : mm)

Vertical Installation	A	C
5 Lead	15kg	1200
	22kg	820
	33kg	550
10 Lead	10kg	1600
	14kg	1150
	22kg	730
20 Lead	7kg	1800
	10kg	1250
	-	-
32 Lead	5kg	1600
	8kg	1000
	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	606
<b>MP</b>	606
<b>MR</b>	1168

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

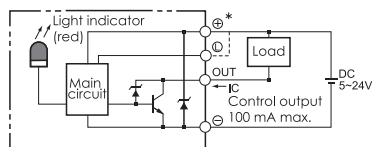
**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
<b>MY</b>	179.7
<b>MP</b>	179.7
<b>MR</b>	270.3
2540 km of travel (Unit : N.m)	
<b>MY</b>	47.3
<b>MP</b>	47.3
<b>MR</b>	71.1

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MADHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MADHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



1 axis  
**GTH**

GTH4

GTH5

GTH5S

**GTH8**

GTH8S

GTH12

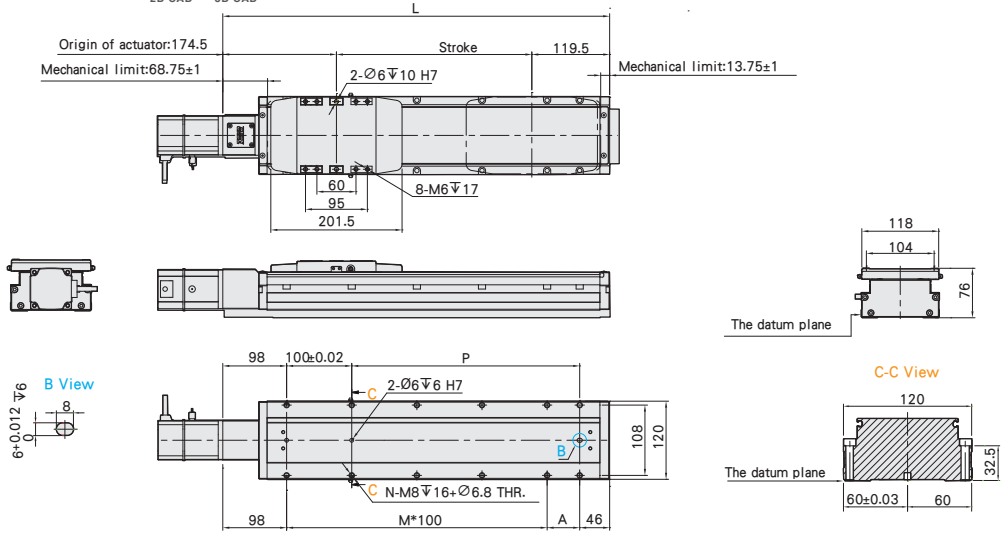
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



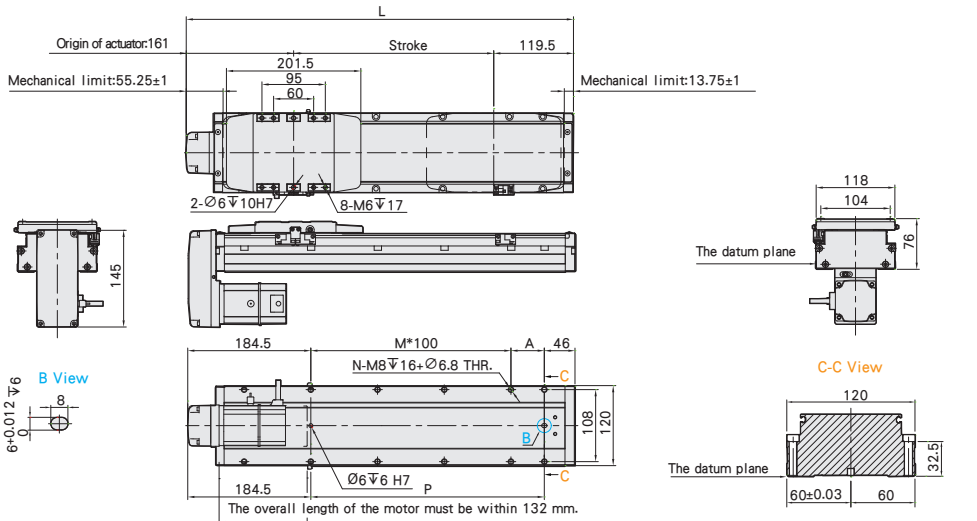
stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	344	394	444	494	544	594	644	694	744	794	844	894	944	994	1044	1094	1144	1194	1244	1294	1344	1394	1444	1494	1544
A	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1050	1100	1150	1200	1250	1300	
KG	5.05	5.4	5.75	6.1	6.45	6.8	7.15	7.5	7.85	8.2	8.55	8.9	9.25	9.6	9.95	10.3	10.65	11	11.35	11.7	12.05	12.4	12.75	13.1	13.45

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	330.5	380.5	430.5	480.5	530.5	580.5	630.5	680.5	730.5	780.5	830.5	880.5	930.5	980.5	1030.5	1080.5	1130.5	1180.5	1230.5	1280.5	1330.5	1380.5	1430.5	1480.5	1530.5
A	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12
N	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1050	1100	1150	1200	1250	1300	1350
KG	5.21	5.56	5.91	6.26	6.61	6.96	7.31	7.66	8.01	8.36	8.71	9.06	9.41	9.76	10.11	10.46	10.81	11.16	11.51	11.86	12.21	12.56	12.91	13.26	13.61

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

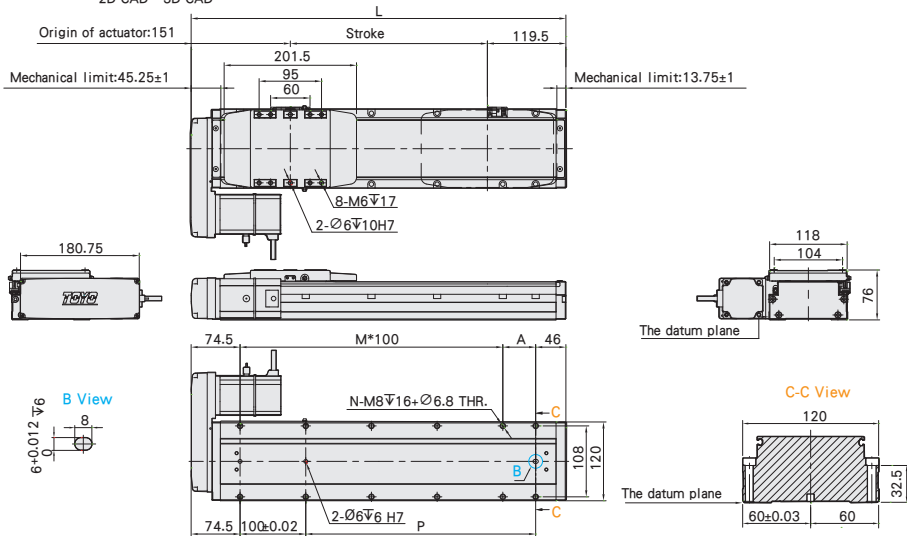
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



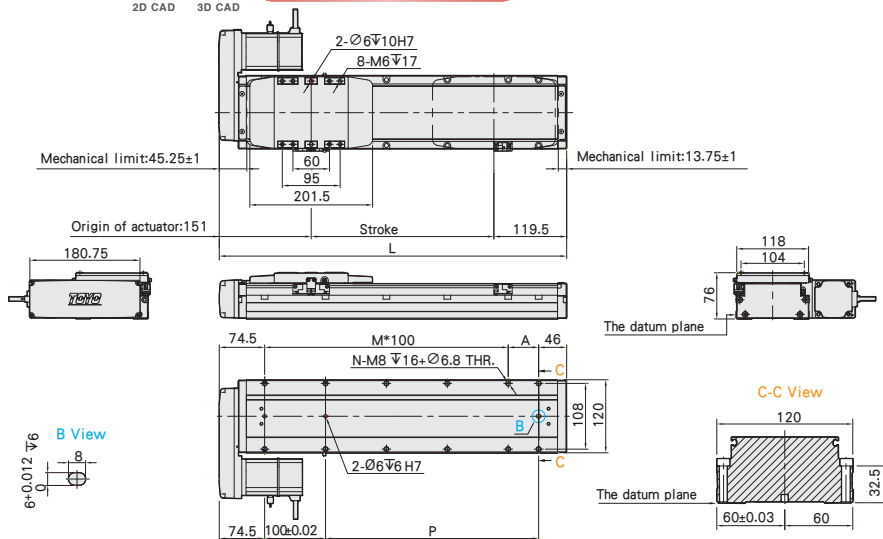
stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	320.5	370.5	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5	1070.5	1120.5	1170.5	1220.5	1270.5	1320.5	1370.5	1420.5	1470.5	1520.5
A	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1050	1000	1050	1200	1250	1300	1350
KG	5.25	5.6	5.95	6.3	6.65	7	7.35	7.7	8.05	8.4	8.75	9.1	9.45	9.8	10.15	10.85	11.2	11.55	11.9	12.25	12.6	12.56	12.91	13.26	13.61

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	320.5	370.5	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5	1070.5	1120.5	1170.5	1220.5	1270.5	1320.5	1370.5	1420.5	1470.5	1520.5
A	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1050	1100	1150	1200	1250	1300	1350
KG	5.25	5.6	5.95	6.3	6.65	7	7.35	7.7	8.05	8.4	8.75	9.1	9.45	9.8	10.15	10.85	11.2	11.55	11.9	12.25	12.6	12.56	12.91	13.26	13.61

1 axis  
**GTH**

GTH4

GTH5

GTH5S

**GTH8**

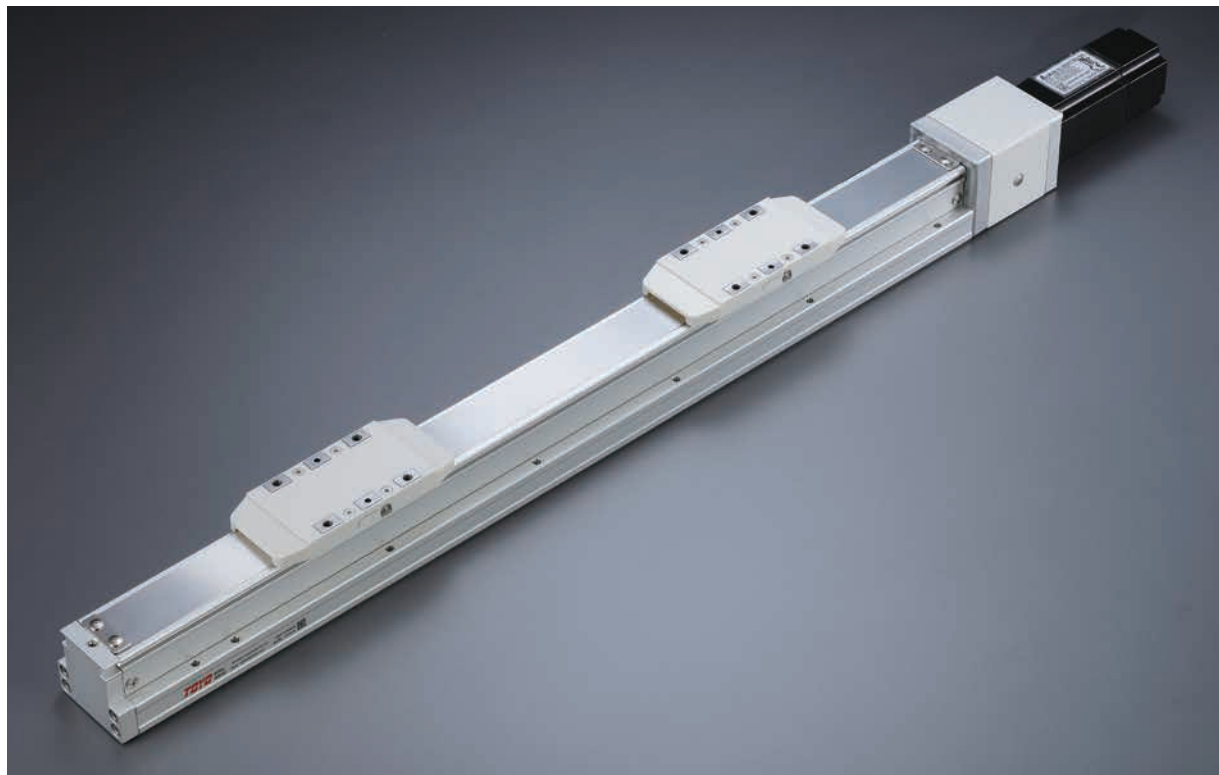
GTH8S

GTH12

# GTH5S

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **325mm**

Maximum Speed **100mm/s**

Motor Output **100W**

Ball Screw **Ø 12mm**

## Ordering Method

# GTH5S - L2 - 100 - BC - M10B - C 4 - 0001

Model

Special Order No.

### Stroke

25-325mm  
25 mm Pitch

\*For 50mm stroke see sensor limits below.

\*10mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	100W	
Y	Yaskawa	20	-	
T	Delta	40	-	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

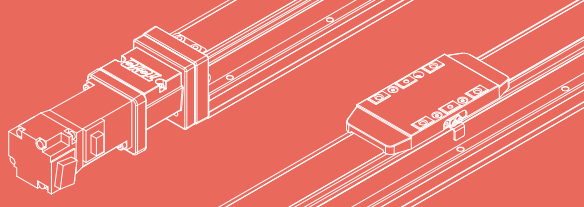
02 2mm

\*Dual carriage synchronous movement in reverse direction can only fit at lead of 2mm.

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1. The home sensor and the limit sensor must be installed on different sides of the body.  
2. The sensor trigger device must be installed on both sides of the device.





Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

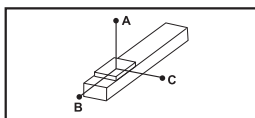
**Specifications**

Actuator Specs	Ball Screw Lead (mm)		2	
	Maximum Speed (mm/s)		100	
	Max payload of Double-carrier	Horizontal (kg)	30	
		Vertical (kg)	10	
	Rated Thrust (N)		854	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	636
			2540 km of travel	172
		Static Horizontal (kg)		1734
	Repeatability (mm)		±0.01	
	Allowable Input Torque (rpm)		3000	
	Start Torque (N.cm)		7	
	Lost Motion (mm)		0.1	
	Allowable Input Torque (N.m)		1.1	
	Maximum Acceleration (m/sec <sup>2</sup> )		10	
	Friction Coefficient		<0.01	
Stroke Pitch (mm)		25-325mm / 25mm Pitch		

Parts Specs	Ball Screw Lead (mm)		2
	Ball Screw	Basic dynamic load rating Ca (N)	3277
		Basic static load rating Coa (N)	8888
	Linear Guide	Basic dynamic load rating C (KG)	840
		Basic static load rating Co (KG)	1700
	Fixed Bearing	Basic dynamic load rating Cor (N)	1730
		Basic static load rating Cr (N)	3800
	AC Servo Motor Output (W)		100
	Ball Screw Ø (mm)		C7Ø12
	Coupling (mm)		7X8
	Home Sensor	Outside	EE-SX674(NPN)

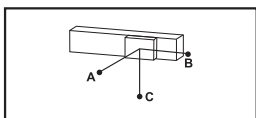
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



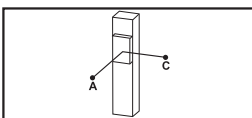
(Unit : mm)

Horizontal Installation	A	B	C
2 Lead	10kg	900	135
	20kg	700	60
	30kg	550	25



(Unit : mm)

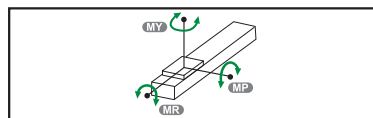
Wall Installation	A	B	C
2 Lead	10kg	135	900
	20kg	60	45
	30kg	37	27



(Unit : mm)

Vertical Installation	A	C
2 Lead	6kg	180
	8kg	135
	10kg	110

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	103
<b>MP</b>	103
<b>MR</b>	144

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.

\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
		With Brake (Vertical Type)	100	220	HG-KR13B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
		With Brake (Vertical Type)	100	220	MSMD012G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B
		With Brake (Vertical Type)	100	220	ECMA-C20401FS	ASD-B20121-B

**Dynamic Loading moment**

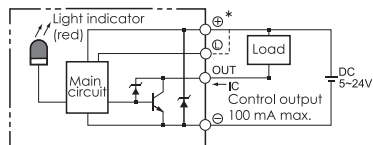
**50 km of travel** (Unit : N.m)

<b>MY</b>	10.9
<b>MP</b>	10.9
<b>MR</b>	15.3

**2540 km of travel** (Unit : N.m)

<b>MY</b>	2.9
<b>MP</b>	2.9
<b>MR</b>	4

**Sensor Layout**



1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

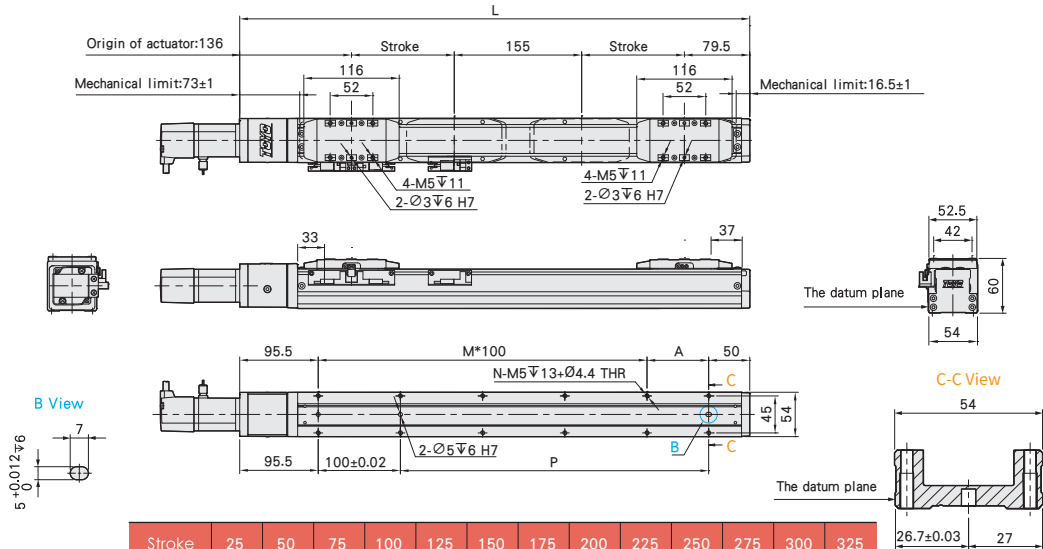
**GTH8S**

GTH12

## Motor Exposed / Motor Bottom Side

Unit: mm

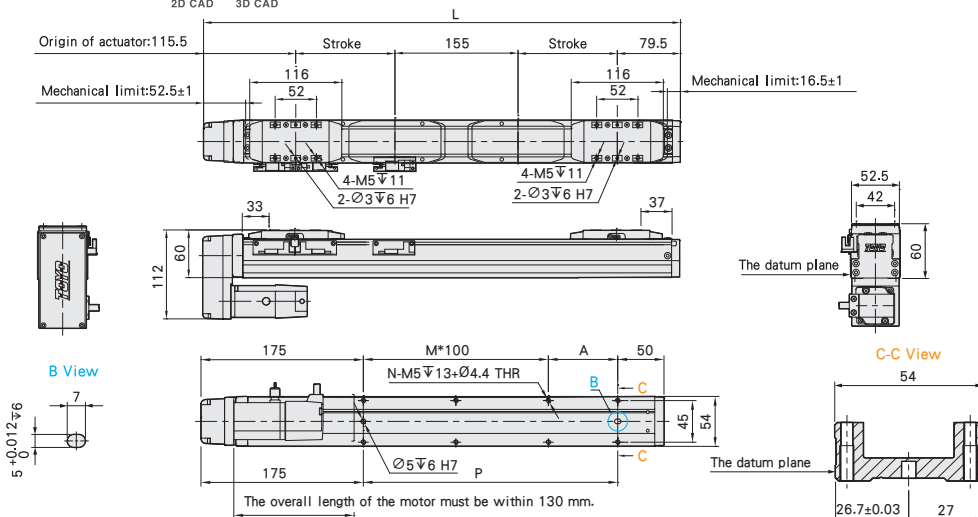
**BC Motor Exposed** [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325
L	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5
A	75	25	75	25	75	25	75	25	75	25	75	25	75
M	2	3	3	4	4	5	5	6	6	7	7	8	8
N	8	10	10	12	12	14	14	16	16	18	18	20	20
P	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	2.82	3.01	3.21	3.41	3.6	3.8	4	4.19	4.39	4.59	4.78	4.98	5.18

**BM Motor Bottom Side** [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325
L	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	75	25	75	25	75	25	75	25	75	25	75	25	75
M	1	2	2	3	3	4	4	5	5	6	6	7	7
N	6	8	8	10	10	12	12	14	14	16	16	18	18
P	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	2.99	3.18	3.38	3.58	3.77	3.97	4.17	4.36	4.56	4.76	4.95	5.15	5.35

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

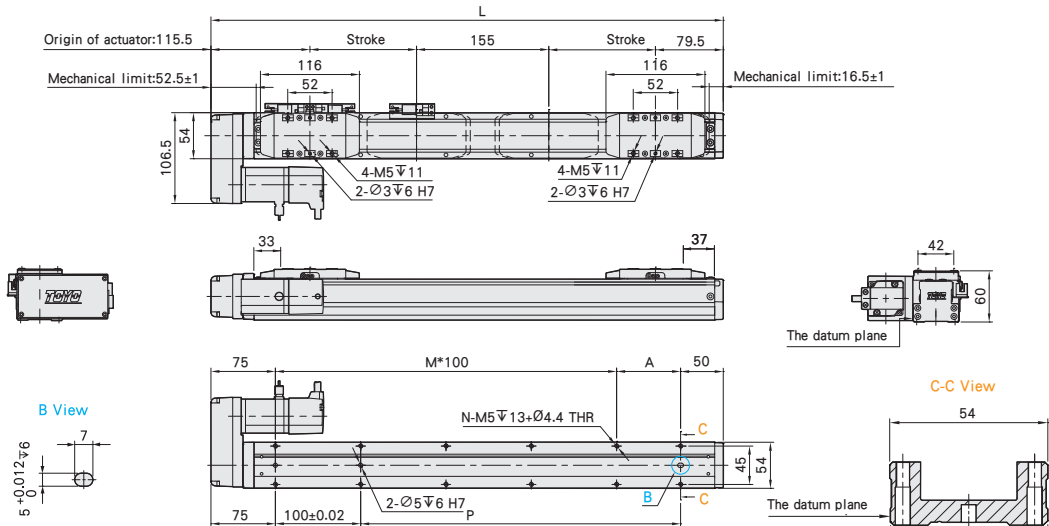
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



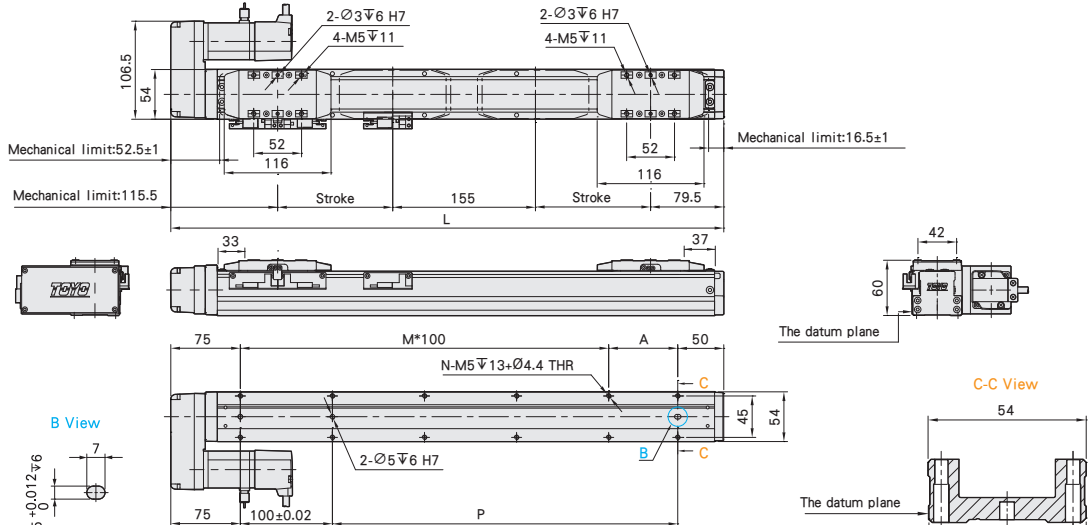
Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325
L	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	75	25	75	25	75	25	75	25	75	25	75	25	75
M	2	3	3	4	4	5	5	6	6	7	7	8	8
N	8	10	10	12	12	14	14	16	16	18	18	20	20
P	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	2.99	3.18	3.38	3.58	3.77	3.97	4.17	4.36	4.56	4.76	4.95	5.15	5.35

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	25	50	75	100	125	150	175	200	225	250	275	300	325
L	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	75	25	75	25	75	25	75	25	75	25	75	25	75
M	2	3	3	4	4	5	5	6	6	7	7	8	8
N	8	10	10	12	12	14	14	16	16	18	18	20	20
P	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	2.99	3.18	3.38	3.58	3.77	3.97	4.17	4.36	4.56	4.76	4.95	5.15	5.35

1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

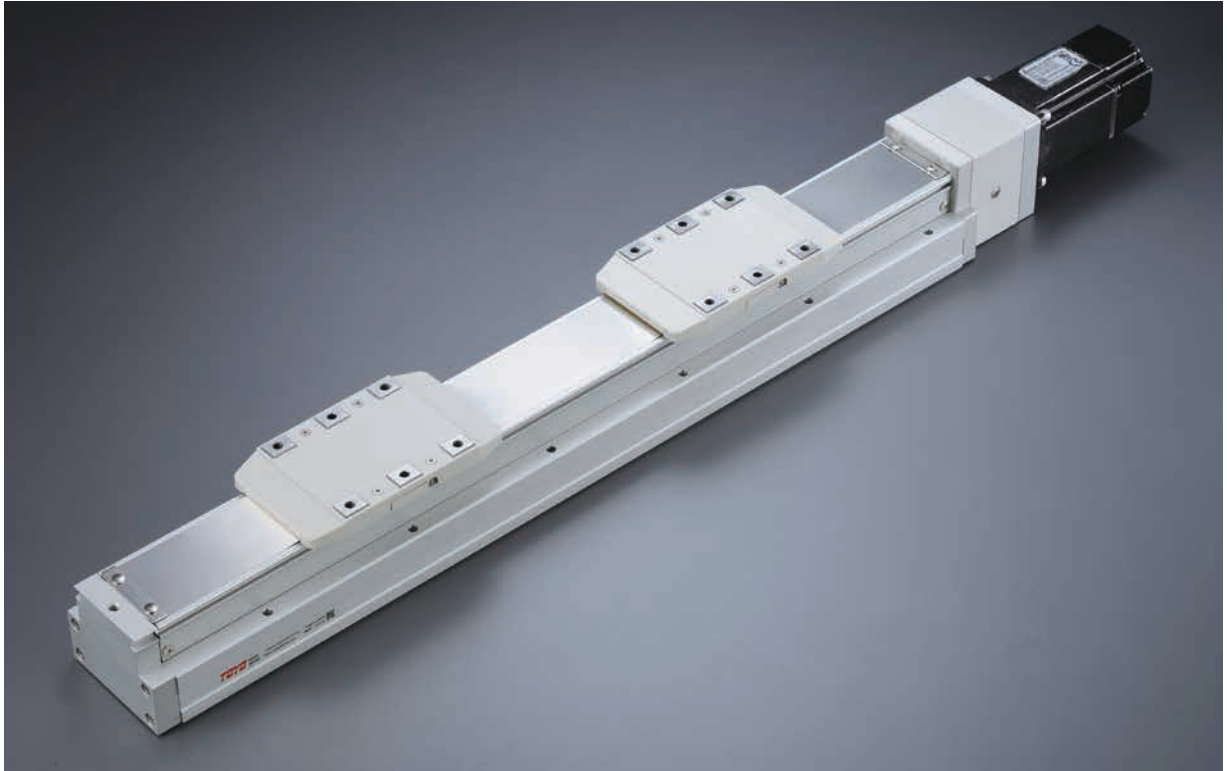
**GTH8S**

GTH12

# GTH8S

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **450mm**

Maximum Speed **250mm/s**

Motor Output **200W**

Ball Screw **Ø 16mm**

## Ordering Method

# GTH8S - L5 - 100 - BC - M20B - C 4 - 0001

Model

Special Order No.

### Stroke

25-450mm  
25 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*10mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	200W	
T	Delta	40	-	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

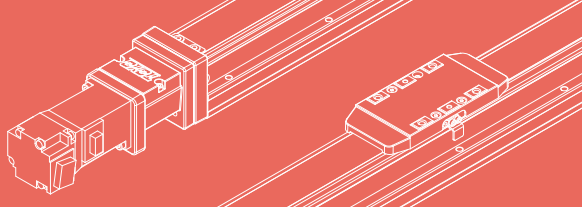
### Ball Screw Lead

05 5mm

\*Dual carriage synchronous movement in reverse direction can only fit at lead of 2mm.

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1. The home sensor and the limit sensor must be installed on different sides of the body.  
2. The sensor trigger device must be installed on both sides of the device.



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**Specifications**

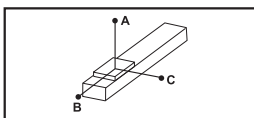
Actuator Specs	Ball Screw Lead (mm)		5	
	Maximum Speed (mm/s)		250	
	Max payload of Double-carrier	Horizontal (kg)	50	
		Vertical (kg)	15	
	Rated Thrust (N)		683	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1608
			2540 km of travel	434
		Static Horizontal (kg)	3630	
	Repeatability (mm)		±0.01	
	Allowable Input Torque (rpm)		3000	
	Start Torque (N.cm)		10	
	Lost Motion (mm)		0.1	
	Allowable Input Torque (N.m)		2.2	
	Maximum Acceleration (m/sec <sup>2</sup> )		10	
Friction Coefficient		<0.01		
Stroke Pitch (mm)		25-450mm / 50mm Pitch		

Parts Specs	Ball Screw Lead (mm)		5
	Ball Screw	Basic dynamic load rating Ca (N)	13538
		Basic static load rating Coa (N)	29940
	Linear Guide	Basic dynamic load rating C (KG)	1930
		Basic static load rating Co (KG)	3630
	Fixed Bearing	Basic dynamic load rating Cor (N)	2600
		Basic static load rating Cr (N)	4750
	AC Servo Motor Output (W)		200
	Ball Screw Ø (mm)		C7 Ø16
	Coupling (mm)		10X14/11(Notes 1)
	Home Sensor	Outside	EE-SX674(NPN)

\*Acceleration and deceleration value is set at 0.2 seconds.

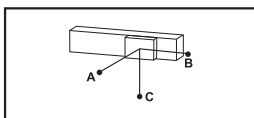
\*Note 1: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Allowable Overhang**



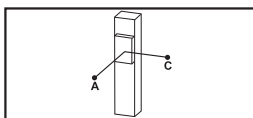
(Unit : mm)

Horizontal Installation	A	B	C
2 Lead	20kg	1560	237
	35kg	890	126
	50kg	550	82



(Unit : mm)

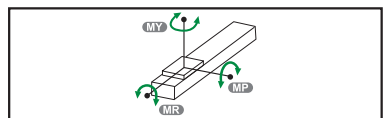
Wall Installation	A	B	C
5 Lead	20kg	214	1435
	35kg	113	845
	50kg	74	506



(Unit : mm)

Vertical Installation	A	C
5 Lead	10kg	331
	15kg	220
	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	318
<b>MP</b>	318
<b>MR</b>	626

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADHT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADHT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C20602ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C20602FS	ASD-B20221-B

**Dynamic Loading moment**

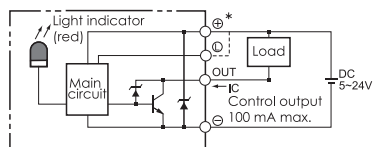
**50 km of travel** (Unit : N.m)

<b>MY</b>	32.7
<b>MP</b>	32.7
<b>MR</b>	54.1

**2540 km of travel** (Unit : N.m)

<b>MY</b>	8.6
<b>MP</b>	8.6
<b>MR</b>	14.2

**Sensor Layout**



1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

**GTH8S**

GTH12

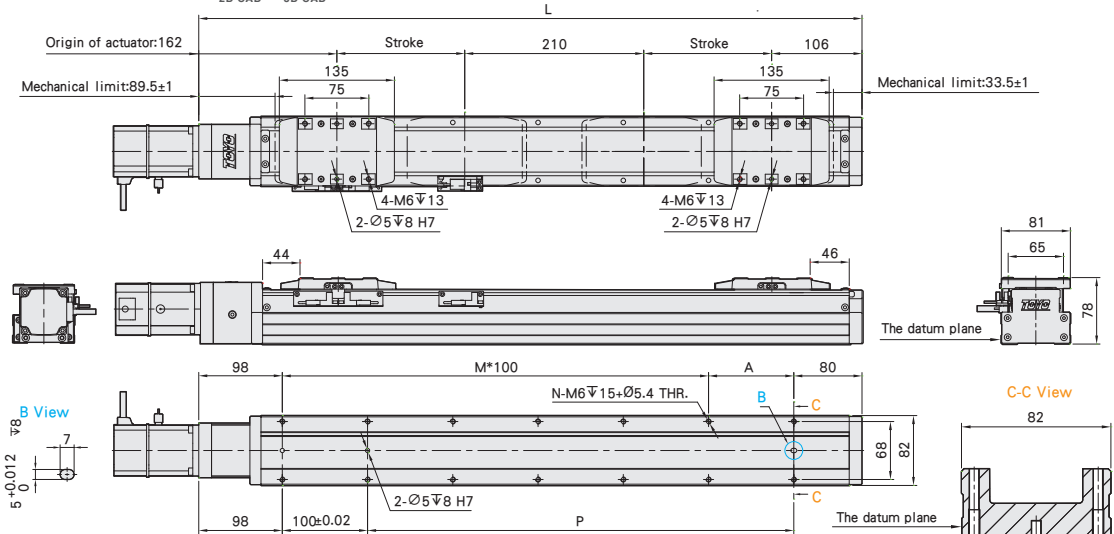
## Motor Exposed / Motor Bottom Side

Unit: mm

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



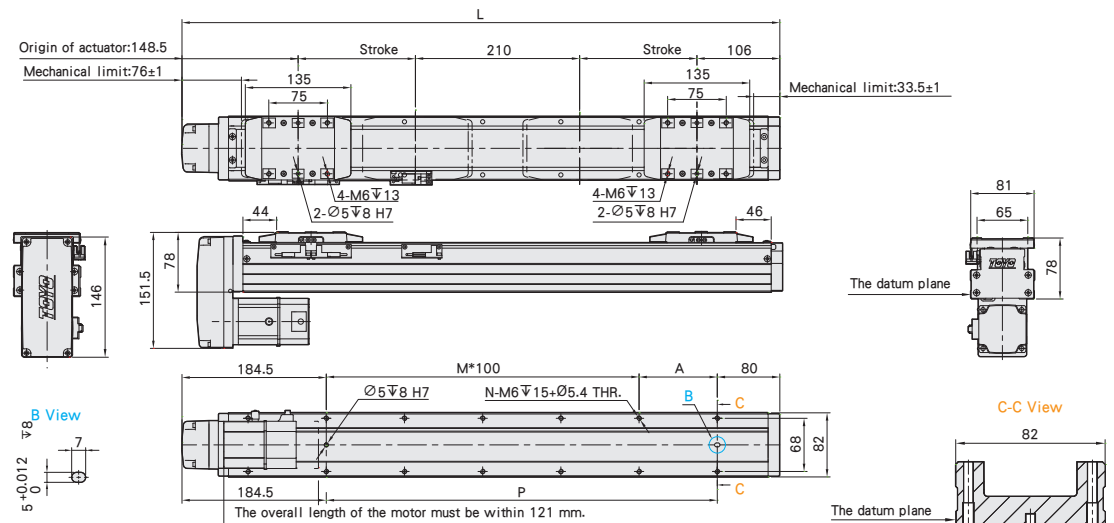
stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	6.64	7.00	7.37	7.73	8.10	8.46	8.83	9.19	9.56	9.92	10.29	10.65	11.02	11.38	11.75	12.11	12.48	12.85

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

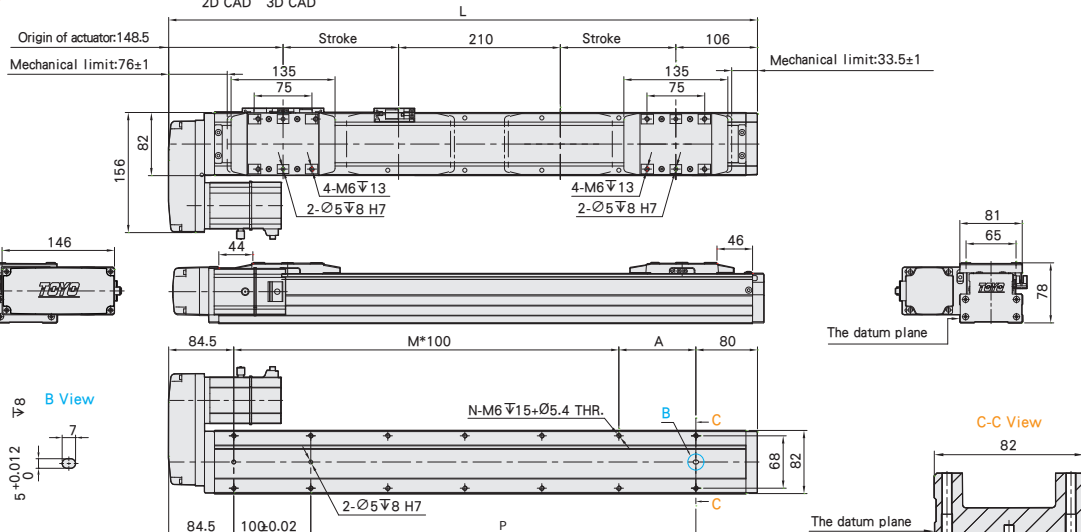
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



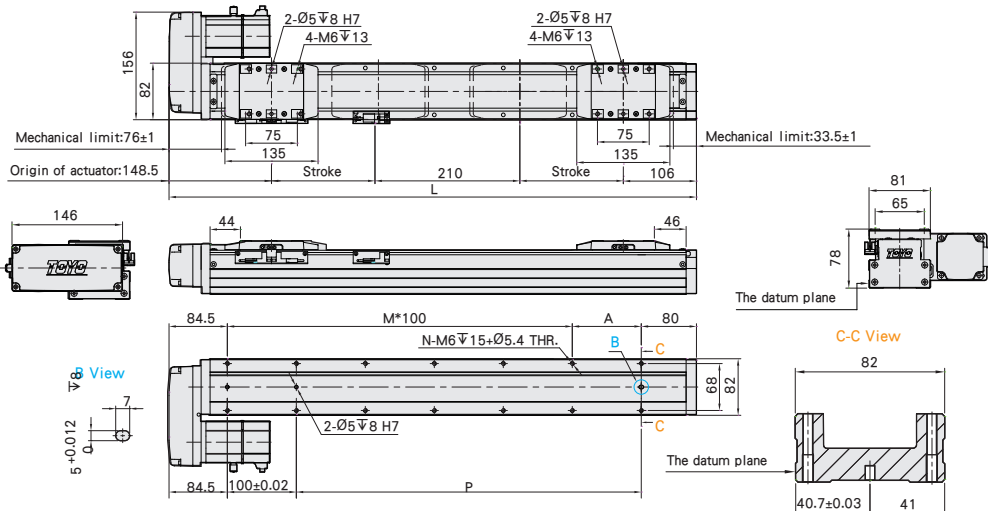
stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

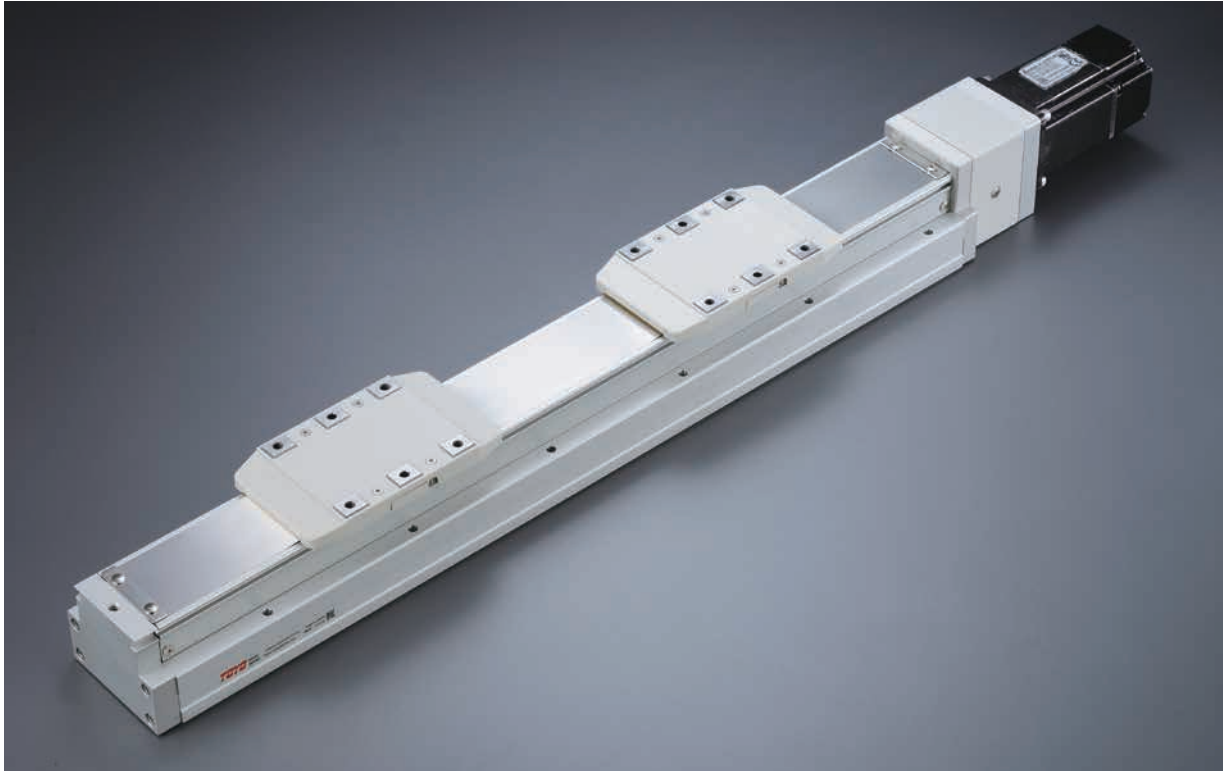


stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

# GTH8S

1-axis

▶ Built-in Guideway ▶ Ball Screw Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **450mm**

Maximum Speed **250mm/s**

Motor Output **400W**

Ball Screw **Ø16mm**

## Ordering Method

# GTH8S- L5 - 100 - BC - M40B - C 4 - 0001

Model

Special Order No.

### Stroke

25-450mm  
25 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*10mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand Power output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	400W	

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

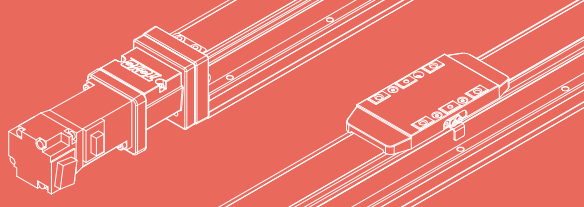
05 5mm

\*Dual carriage synchronous movement in reverse direction can only fit at lead of 2mm.

\*There is no description for models that do not include brakes.

\*When the stroke is 50mm, the sensor installation has the following restrictions:  
1.The home sensor and the limit sensor must be installed on different sides of the body.  
2.The sensor trigger device must be installed on both sides of the device.





Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

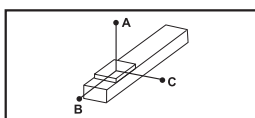
**Specifications**

Actuator Specs	Ball Screw Lead (mm)	5		
	Maximum Speed (mm/s)	250		
	Max payload of Double-carrier	Horizontal (kg)	50	
		Vertical (kg)	15	
	Rated Thrust (N)	1388		
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1608
			2540 km of travel	434
		Static Horizontal (kg)	3630	
	Repeatability (mm)	±0.01		
	Allowable Input Torque (rpm)	3000		
	Start Torque (N.cm)	10		
	Lost Motion (mm)	0.1		
	Allowable Input Torque (N.m)	2.2		
	Maximum Acceleration (m/sec <sup>2</sup> )	10		
Friction Coefficient	<0.01			
Stroke Pitch (mm)	25-450mm / 50mm Pitch			

Parts Specs	Ball Screw Lead (mm)	5	
	Ball Screw	Basic dynamic load rating Ca (N)	13538
		Basic static load rating Coa (N)	29940
	Linear Guide	Basic dynamic load rating C (KG)	1930
		Basic static load rating Co (KG)	3630
	Fixed Bearing	Basic dynamic load rating Cor (N)	2600
		Basic static load rating Cr (N)	4750
	AC Servo Motor Output (W)	400	
	Ball Screw Ø (mm)	C7 Ø16	
	Coupling (mm)	10X14	
	Home Sensor	Outside	EE-SX674(NPN)

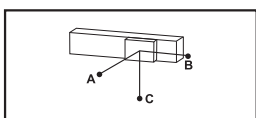
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



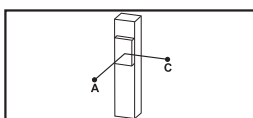
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	20kg	1560	237
	35kg	890	126
	50kg	550	82



(Unit : mm)

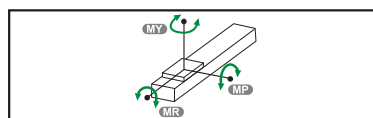
Wall Installation	A	B	C
5 Lead	20kg	214	1435
	35kg	113	845
	50kg	74	506



(Unit : mm)

Vertical Installation	A	C
5 Lead	10kg	331
	15kg	220
	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	318
<b>MP</b>	318
<b>MR</b>	626

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Dynamic Loading moment**

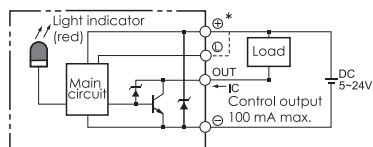
**50 km of travel** (Unit : N.m)

<b>MY</b>	32.7
<b>MP</b>	32.7
<b>MR</b>	54.1

**2540 km of travel** (Unit : N.m)

<b>MY</b>	8.6
<b>MP</b>	8.6
<b>MR</b>	14.2

**Sensor Layout**



1 axis  
**GTH**

GTH4

GTH5

GTH5S

GTH8

GTH8S

GTH12

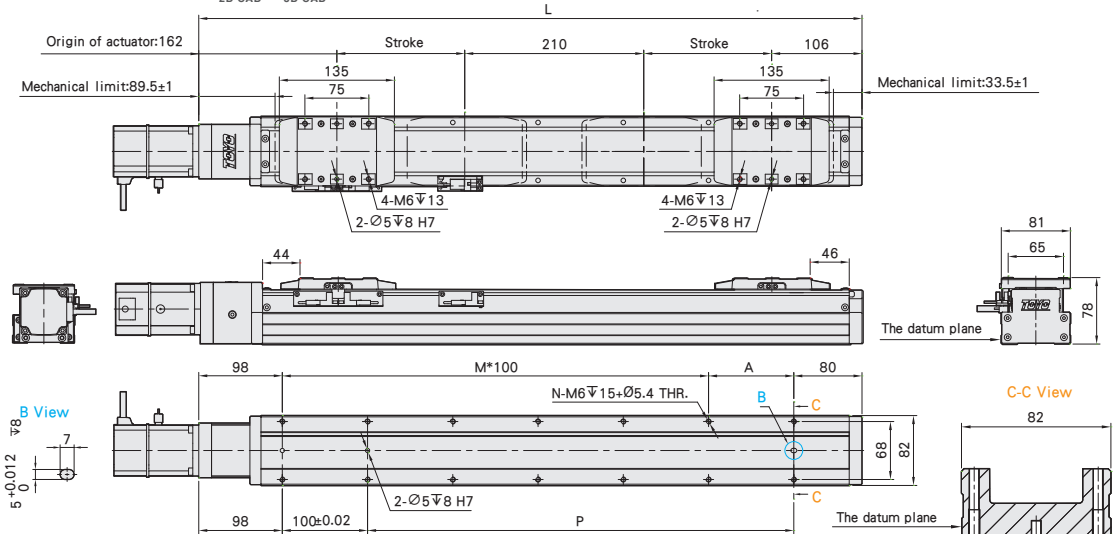
## Motor Exposed / Motor Bottom Side

Unit: mm

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



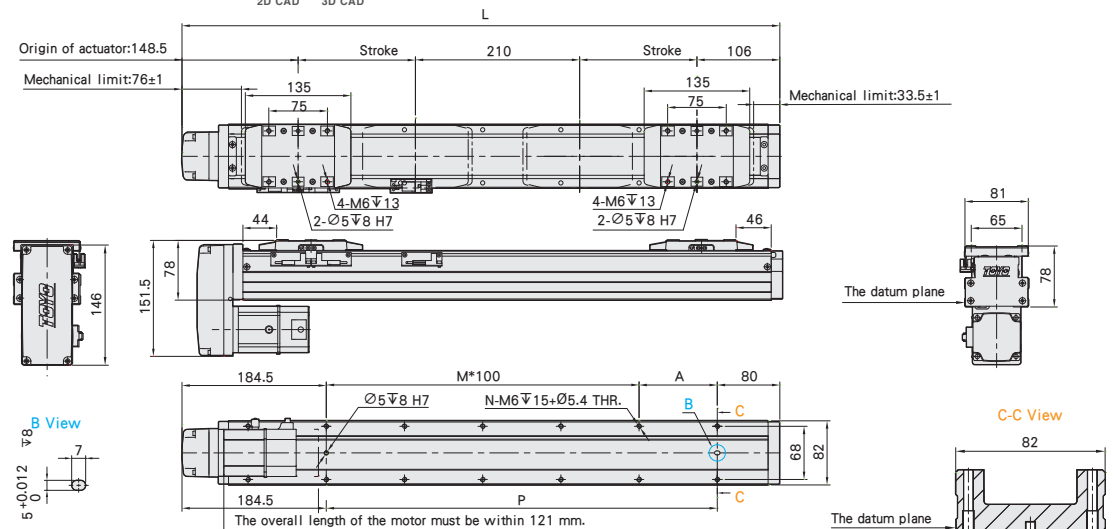
stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	6.64	7.00	7.37	7.73	8.10	8.46	8.83	9.19	9.56	9.92	10.29	10.65	11.02	11.38	11.75	12.11	12.48	12.85

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

\*When motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pin hole. Please contact our sales department if you need more information & requirement.

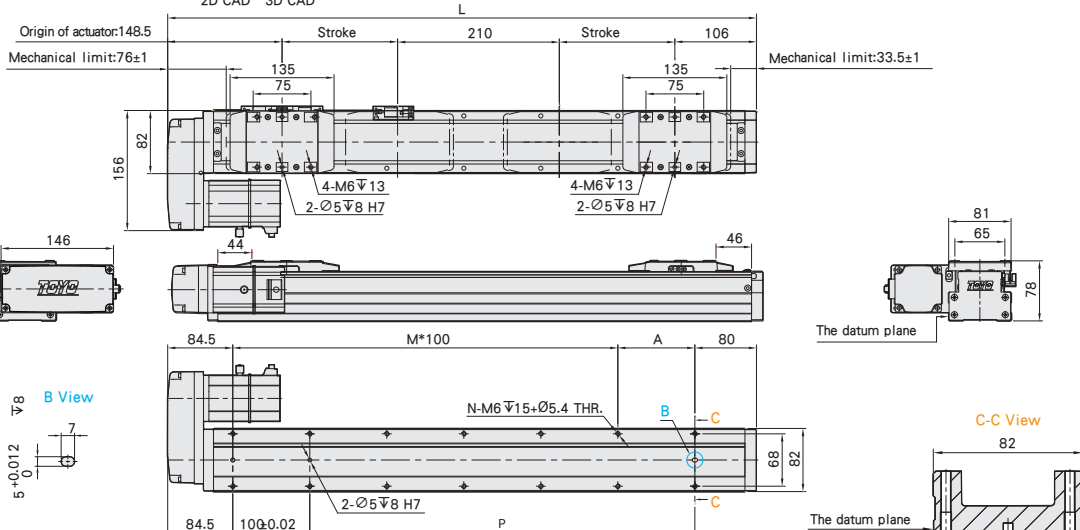
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



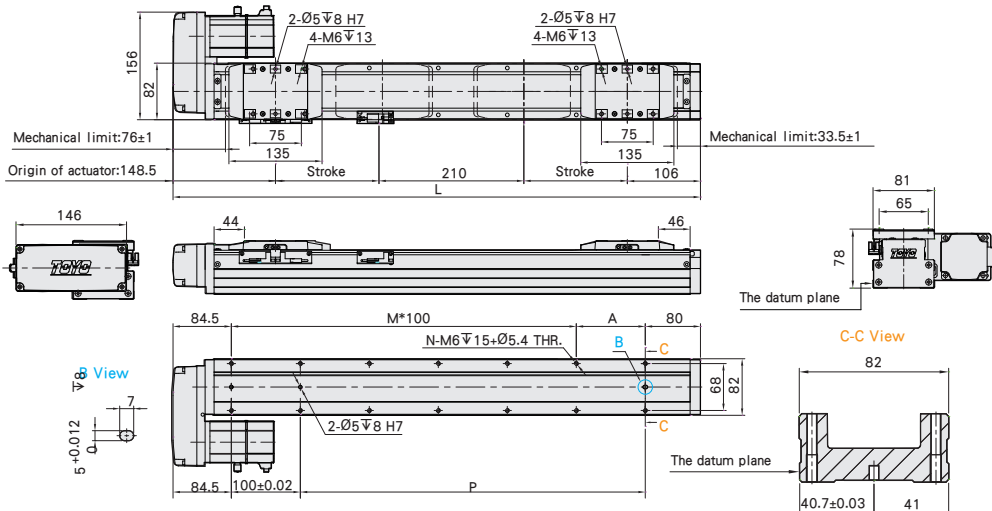
stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



stroke	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
L	514.5	564.5	614.5	664.5	714.5	764.5	814.5	864.5	914.5	964.5	1014.5	1064.5	1114.5	1164.5	1214.5	1264.5	1314.5	1364.5
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
KG	7.16	7.68	8.2	8.72	9.24	9.76	10.28	10.8	11.32	11.84	12.36	12.88	13.4	13.92	14.44	14.96	15.48	16

MEMO

Electric Actuator

# GTY Series



Standard/Rod Type Built-in Guideway Ball Screw Actuator

## CONTENTS

### Standard/Ball Screw

#### SMALL

GTY4



Width 44mm  
 Max. stroke 800mm ..... 103  
 Max. payload 25kg

#### SMALL

GTY5



Width 54mm  
 Max. stroke 800mm ..... 107  
 Max. payload 30kg

#### MEDIUM

GTY8



Width 82mm  
 Max. stroke 1100mm ..... 111  
 Max. payload 50kg

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTYBall Screw Type  
ETHBelt Type  
ETB / MClean Room  
Ball Screw Type  
ECHClean Room  
Belt Type  
ECB

Reference

## Spec Index - Rod Type Built-in Guideway Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg) <sup>*3</sup>		Maximum Speed <sup>*1</sup> (mm/s)	
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical		
Standard Environment	Ball Screw	GTY4	50W	44	±0.01	8	2	25	8	100	
			100W				6	20	5	300	
							12	12	2	600	
		GTY5	100W	54	±0.01	12	2	30	10	100	
							5	30	10	250	
							10	15	5	500	
							20	10	2.5	1000	
		GTY8	200W	82	±0.01	16	5	50	15	250	
							400W	10	30	8	500
								20	12	2.5	1000

<sup>\*1</sup> The maximum speed is based on the servo motor's maximum RPM of 3,000.

<sup>\*3</sup> Extra auxiliary LM guide is needed for this payload to bear the axial load.

Structure

Bull-in-Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>		Speed	Page																										
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1200	1300	1400	1500	1600		
						100																							103
						300																							
						600																							
						100																							
						250																							
						500																							
						1000																							
						250											225												
						500											450												
						1000											900												

<sup>\*2</sup>Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **500mm**

Maximum Speed **600mm/s**

Motor Output **50W**

Ball Screw **Ø10mm**

## Ordering Method

# GTY4 - L2 - 100 - BC - M05B - C4 - 0001

Model

Special Order No.

### Stroke

50-500mm

50 mm Pitch

\*For 50mm stroke see sensor limits below.

\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	50W	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

### Ball Screw Lead

02	2mm
06	6mm
12	12mm

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

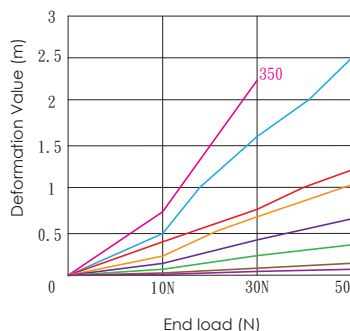
	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor



**Specifications**

Actuator Specs	Ball Screw Lead (mm)	2	6	12	
	Maximum Speed (mm/s)	100	300	600	
	Max payload	Horizontal (kg) (Note2)	25	20	12
		Vertical (kg)	8	5	2
	Rated Thrust (N)	424	141	71	
	Repeatability (mm)	±0.01			
	Lost Motion (mm)	0.1			
	Allowable Input Torque (N.m)	1.1			
	Maximum Acceleration (m/sec <sup>2</sup> )	10			
	Friction Coefficient	<0.01			
Parts Specs	Ball Screw	Basic dynamic load rating Ca (N)	2730	2100	1400
		Basic static load rating Coa (N)	4330	3800	2540
	AC Servo Motor Output (W)	50			
	Ball Screw Ø (mm)	C7Ø10			
	Stroke / Pitch (mm)	50-500mm / 50 mm Pitch			
	Coupling (mm)	7X8			
	Home Sensor	Outside	CS-6T (NPN)		

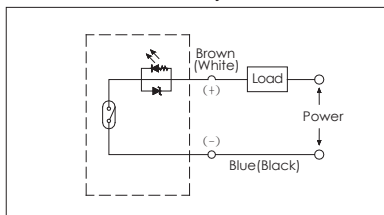
**Shaft Output Deformation Value**



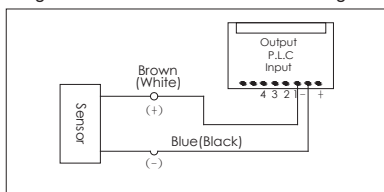
\*Acceleration and deceleration value is set at 0.2 seconds.  
Note 1: Must be fitted with an external auxiliary guideway for radial bearing loads if near maximum payload.

**Sensor Layout**

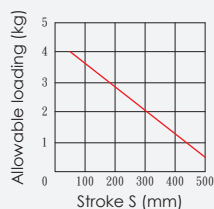
General load : Such as relay or other resistive load



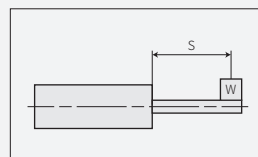
Programmable controller connection diagram



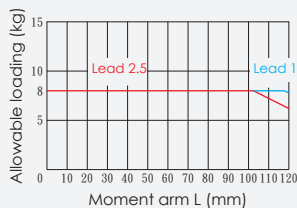
**Allowable installation load**



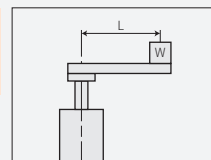
when there is not external auxiliary mechanism.  
when there is not external auxiliary mechanism.



**Load in vertical installation**



Calculation conditions:  
3000 rpm / min,  
acceleration and deceleration: 0.2s.



**Suitable Motors**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	50	220	HG-KR053	MR-J4-10A
		With Brake (Vertical Type)	50	220	HG-KR053B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	50	220	MSMD5A2G1U	MADHT1505
		With Brake (Vertical Type)	50	220	MSMD5A2G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	50	220	ECMA-C1040FES	ASD-B20121-B
		With Brake (Vertical Type)	50	220	ECMA-C1040FFS	ASD-B20121-B

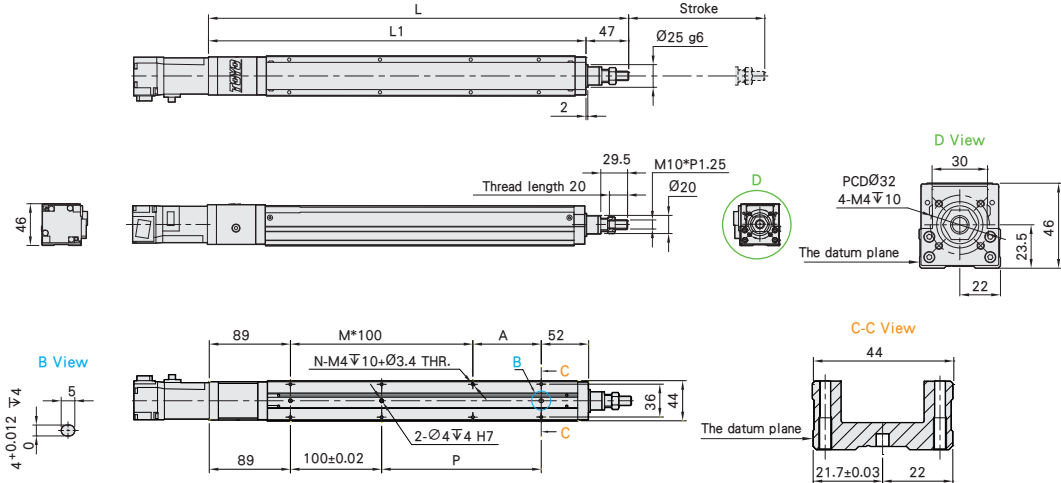
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



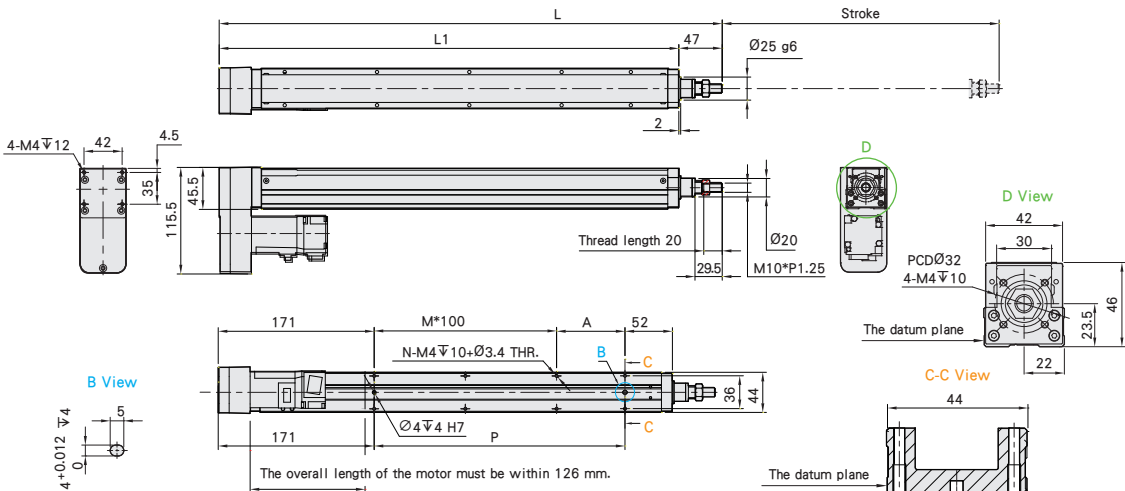
Stroke	50	100	150	200	250	300	350	400	450	500
L	313	363	413	463	513	563	613	663	713	763
L1	266	316	366	416	466	516	566	616	666	716
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.68	1.89	2.1	2.31	2.52	2.73	2.94	3.15	3.36	3.57

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4
N	4	4	6	6	8	8	10	10	12	12
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02

\*When the motor with a brake is assembled on the lower side, or the total length is more than the specified limit, it may not use a standard pinhole. Please contact our sales department if you need more information.

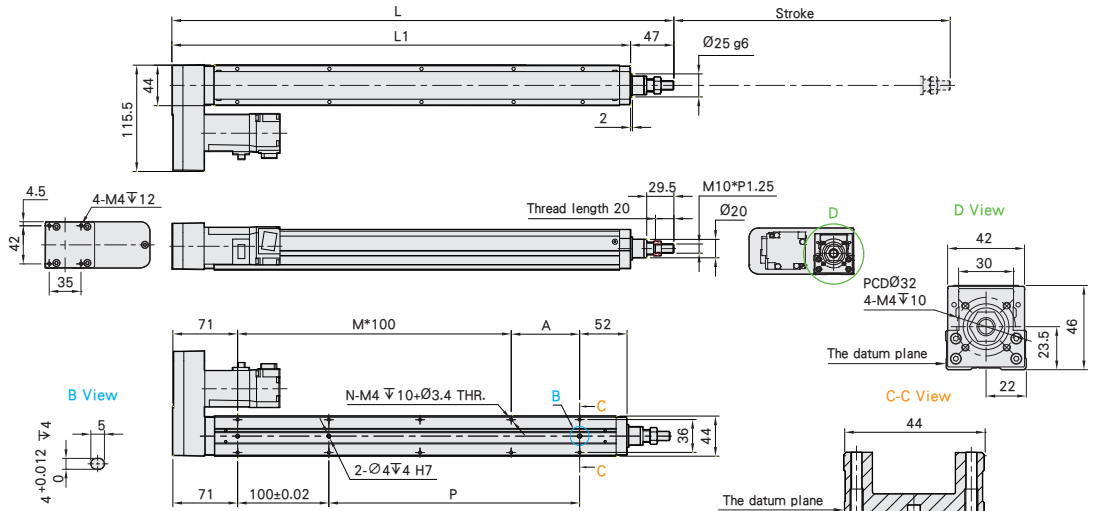
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



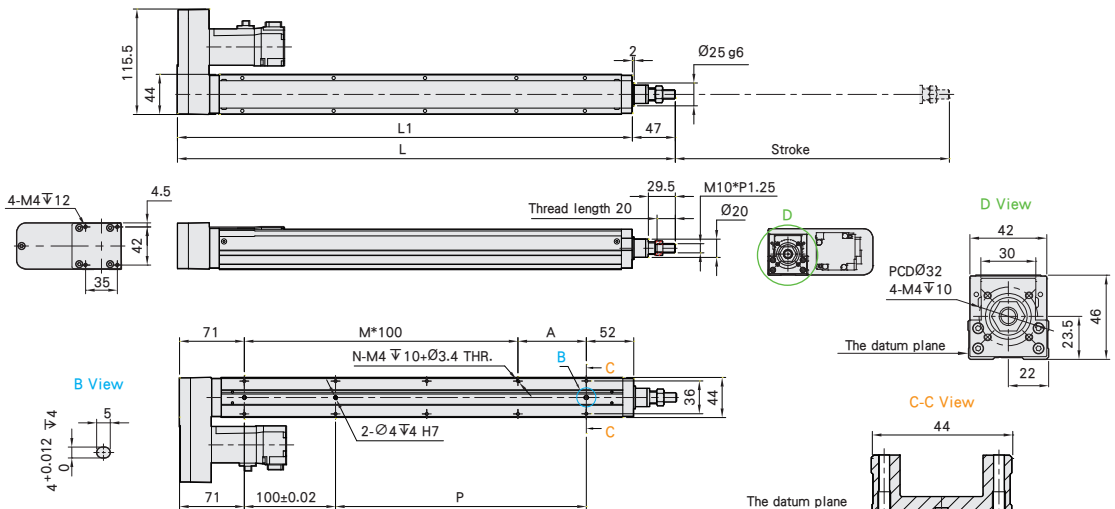
Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **500mm**

Maximum Speed **600mm/s**

Motor Output **100W**

Ball Screw **Ø 10mm**

## Ordering Method

# GTY4 - L2 - 100 - BC - M10B - C4 - 0001

Model

Special Order No.

### Stroke

50-500mm

50 mm Pitch

\*For 50mm stroke see sensor limits below.

\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	-	B
P	Panasonic	10	100W	
Y	Yaskawa	20	-	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

### Ball Screw Lead

02	2mm
06	6mm
12	12mm

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

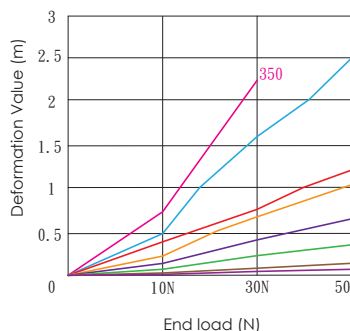
### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

**Specifications**

Actuator Specs	Ball Screw Lead (mm)	2	6	12	
	Maximum Speed (mm/s)	100	300	600	
	Max payload	Horizontal (kg) (Note2)	25	20	12
		Vertical (kg)	8	8	3.5
	Rated Thrust (N)	424	141	71	
	Repeatability (mm)	±0.01			
	Lost Motion (mm)	0.1			
	Allowable Input Torque (N.m)	1.1			
	Maximum Acceleration (m/sec <sup>2</sup> )	10			
	Friction Coefficient	<0.01			
Parts Specs	Ball Screw	Basic dynamic load rating Ca (N)	2730	2100	1400
		Basic static load rating Coa (N)	4330	3800	2540
	AC Servo Motor Output (W)	100			
	Ball Screw Ø (mm)	C7Ø10			
	Stroke / Pitch (mm)	50-500mm / 50 mm Pitch			
	Coupling (mm)	7X8			
	Home Sensor	Outside	CS-6T (NPN)		

**Shaft Output Deformation Value**

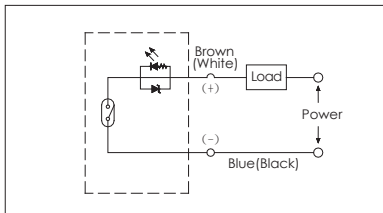


\*This graph is for reference only

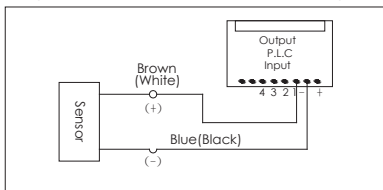
\*Acceleration and deceleration value is set at 0.2 seconds.  
Note 1: Must be fitted with an external auxiliary guideway for radial bearing loads if near maximum payload.

**Sensor Layout**

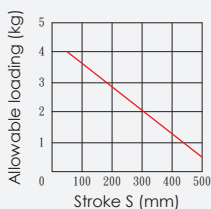
General load : Such as relay or other resistive load



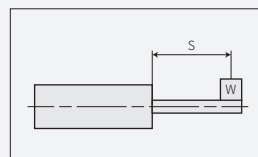
Programmable controller connection diagram



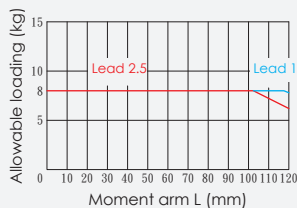
**Allowable installation load**



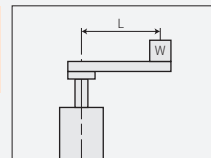
when there is not external auxiliary mechanism.



**Load in vertical installation**



Calculation conditions:  
3000 rpm / min,  
acceleration and deceleration: 0.2s.



**Suitable Motors**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
		With Brake (Vertical Type)	100	220	HG-KR13B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
		With Brake (Vertical Type)	100	220	MSMD012G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B
		With Brake (Vertical Type)	100	220	ECMA-C20401FS	ASD-B20121-B

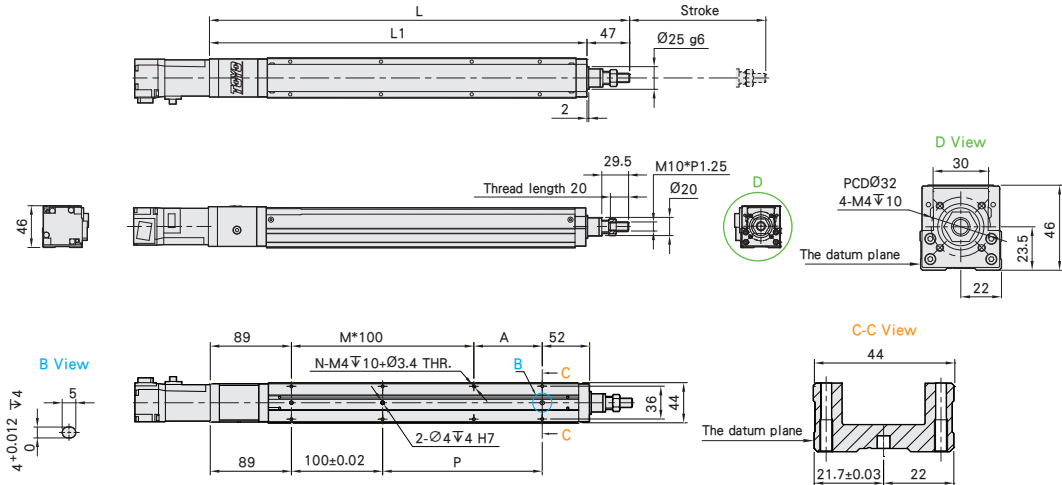
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



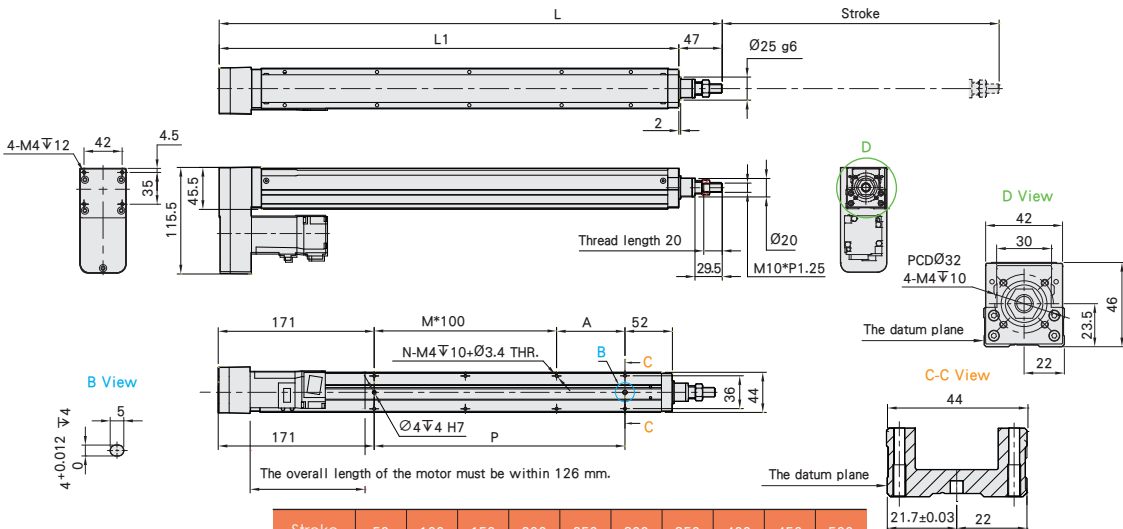
Stroke	50	100	150	200	250	300	350	400	450	500
L	313	363	413	463	513	563	613	663	713	763
L1	266	316	366	416	466	516	566	616	666	716
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.68	1.89	2.1	2.31	2.52	2.73	2.94	3.15	3.36	3.57

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4
N	4	4	6	6	8	8	10	10	12	12
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02

\*When the motor with a brake is assembled on the lower side, or the total length is more than the specified limit, it may not use a standard pinhole. Please contact our sales department if you need more information.

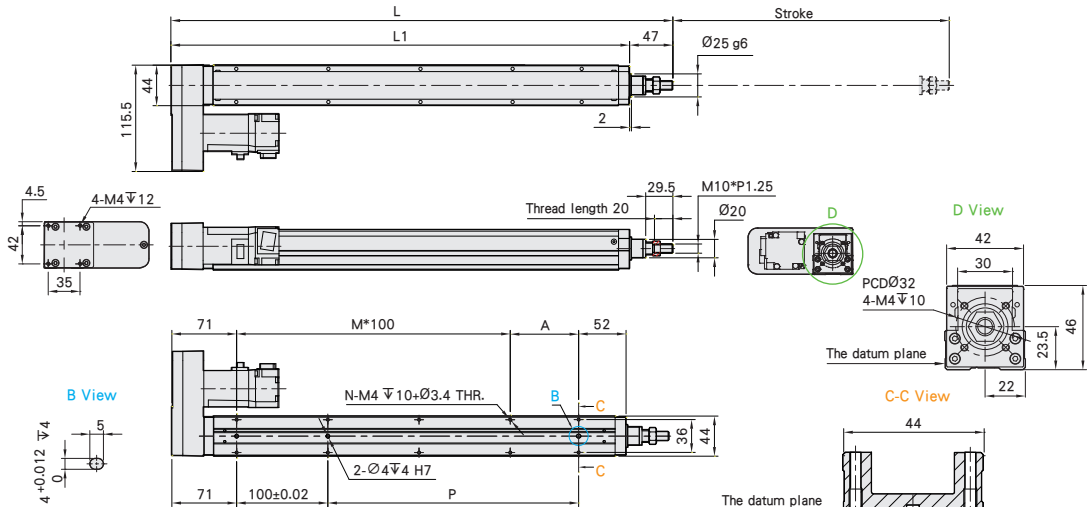
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



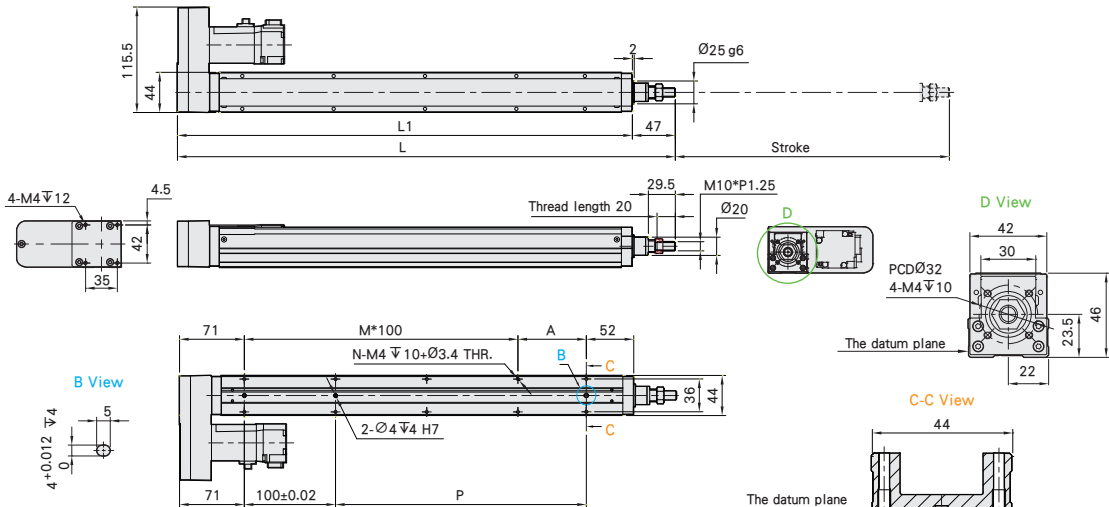
Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500
L	295	345	395	445	495	545	595	645	695	745
L1	248	298	348	398	448	498	548	598	648	698
A	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5
N	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475
KG	1.79	2.04	2.29	2.54	2.78	3.03	3.28	3.53	3.77	4.02



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **600mm**

Maximum Speed **1000mm/s**

Motor Output **100W**

Ball Screw **Ø 12mm**

## Ordering Method

# GTY5 - L5 - 100 - BC - M10B - C4 - 0001

Model

Special Order No.

### Stroke

50-600mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	-	B
P	Panasonic	10	100W	
Y	Yaskawa	20	-	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

### Ball Screw Lead

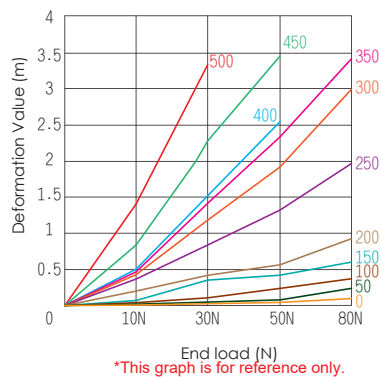
02	2mm
05	5mm
10	10mm
20	20mm



Specifications

Actuator Specs	Ball Screw Lead (mm)	2	5	10	20	
	Maximum Speed (mm/s)	100	250	500	1000	
	Max payload	Horizontal (kg) (Note2)	30	30	15	10
		Vertical (kg)	10	10	5	2.5
	Rated Thrust (N)	854	341	170	85	
	Repeatability (mm)	±0.01				
	Lost Motion (mm)	0.1				
	Allowable Input Torque (N.m)	1.1				
	Maximum Acceleration (m/sec <sup>2</sup> )	10				
	Friction Coefficient	<0.01				
Parts Specs	Ball	Basic dynamic load rating Ca (N)	3277	5258	6298	7622
	Screw	Basic static load rating Coa (N)	8888	7789	12645	12854
	AC Servo Motor Output (W)	100				
	Ball Screw Ø (mm)	C7Ø12				
	Stroke / Pitch (mm)	50-600mm / 50 mm Pitch				
	Coupling (mm)	7X8				
	Home Sensor	Outside	CS-6T (NPN)			

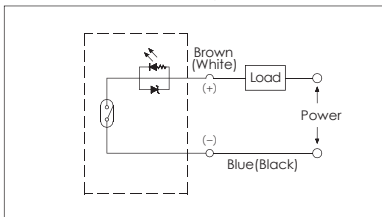
Shaft Output Deformation Value



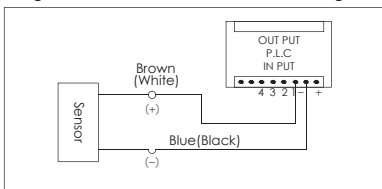
\*Acceleration and deceleration value is set at 0.2 seconds.  
Note 1: Must be fitted with an external auxiliary guideway for radial bearing loads if near maximum payload.

Sensor Layout

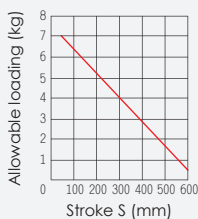
General load : Such as relay or other resistive load



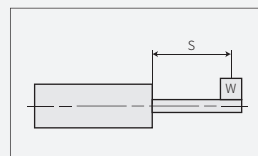
Programmable controller connection diagram



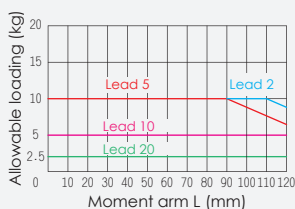
Allowable installation load



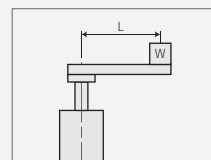
the extensions distance of the load is zero, when there is not external auxiliary



Load in vertical installation



Calculation conditions:  
3000 rpm / min,  
acceleration and deceleration: 0.2s.



Suitable Motors

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
		With Brake (Vertical Type)	100	220	HG-KR13B	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
		With Brake (Vertical Type)	100	220	MSMD012G1V	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B
		With Brake (Vertical Type)	100	220	ECMA-C20401FS	ASD-B20121-B

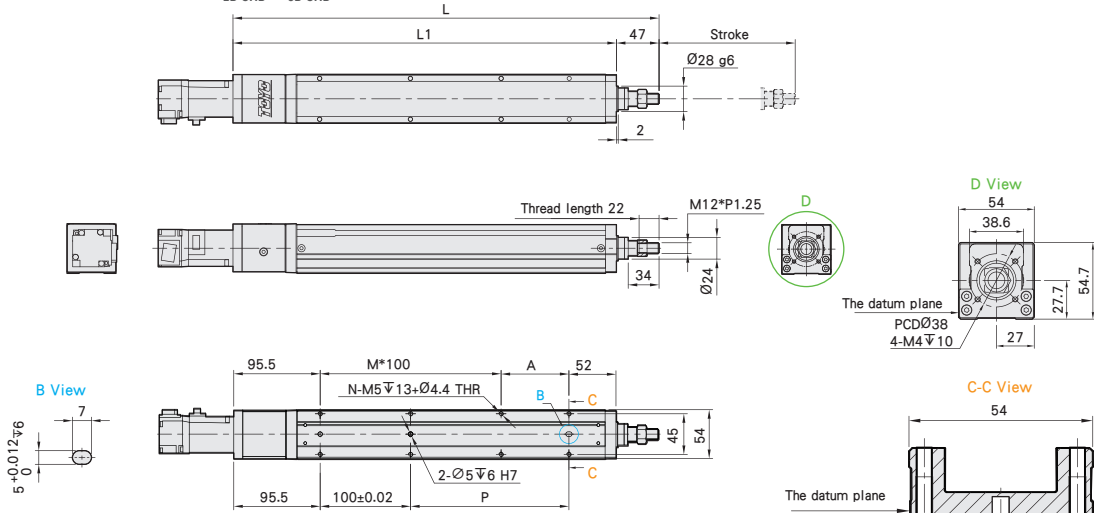
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



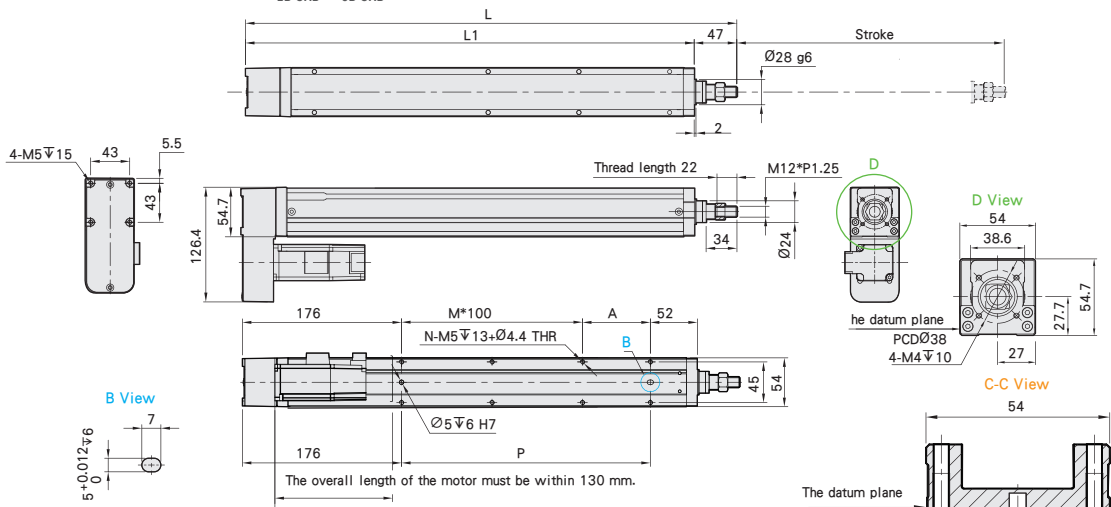
Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	319.5	369.5	419.5	469.5	519.5	569.5	619.5	669.5	719.5	769.5	819.5	869.5
L1	272.5	322.5	372.5	422.5	472.5	522.5	572.5	622.5	672.5	722.5	772.5	822.5
A	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6
N	6	6	8	8	10	10	12	12	14	14	16	16
P	25	75	125	175	225	275	325	375	425	475	525	575
KG	2.17	2.36	2.56	2.76	2.95	3.15	3.35	3.54	3.74	3.94	4.13	4.33

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	300	350	400	450	500	550	600	650	700	750	800	850
L1	253	303	353	403	453	503	553	603	653	703	753	803
A	25	75	25	75	25	75	25	75	25	75	25	75
M	0	0	1	1	2	2	3	3	4	4	5	5
N	4	4	6	6	8	8	10	10	12	12	14	14
P	25	75	125	175	225	275	325	375	425	475	525	575
KG	2.34	2.53	2.73	2.93	3.12	3.32	3.52	3.71	3.91	4.11	4.3	4.5

\*When the motor with a brake is assembled on the lower side, or the total length is more than the specified limit, it may not use a standard pinhole. Please contact our sales department if you need more information.

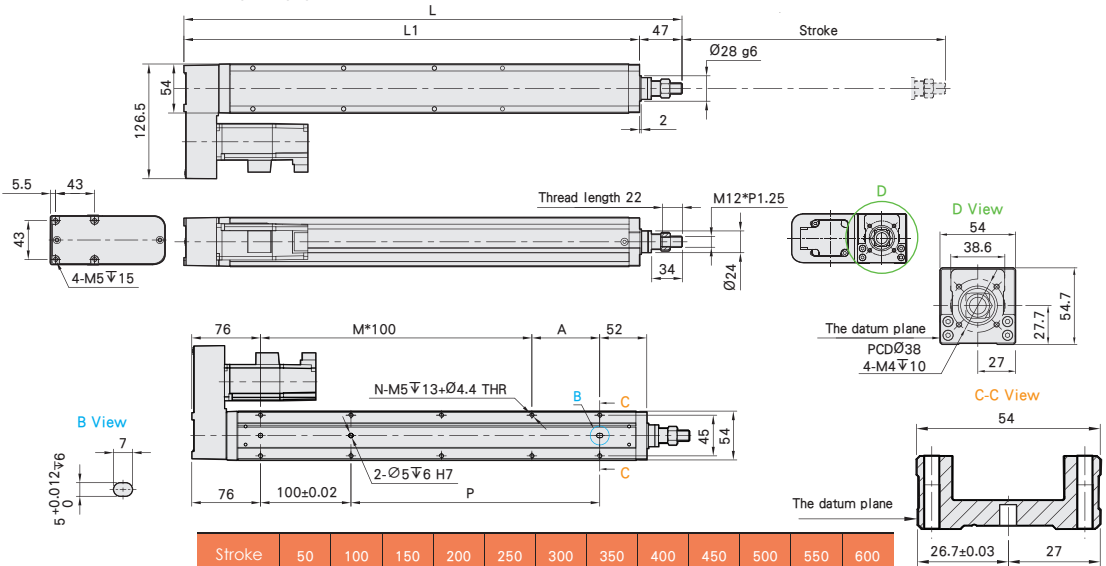
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



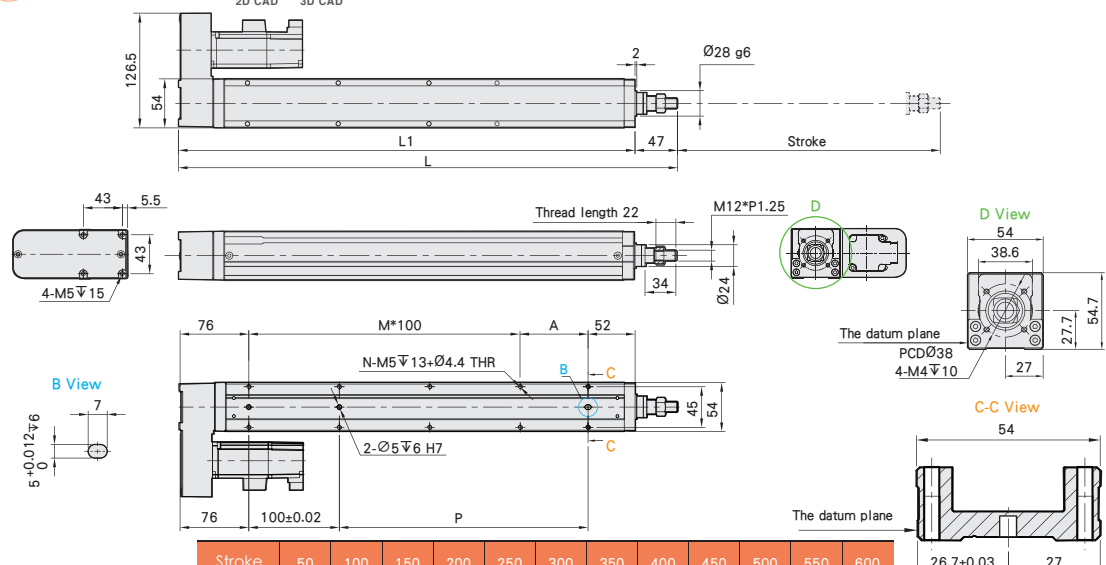
Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	300	350	400	450	500	550	600	650	700	750	800	850
L1	253	303	353	403	453	503	553	603	653	703	753	803
A	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6
N	6	6	8	8	10	10	12	12	14	14	16	16
P	25	75	125	175	225	275	325	375	425	475	525	575
KG	2.34	2.53	2.73	2.93	3.12	3.32	3.52	3.71	3.91	4.11	4.3	4.5

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	300	350	400	450	500	550	600	650	700	750	800	850
L1	253	303	353	403	453	503	553	603	653	703	753	803
A	25	75	25	75	25	75	25	75	25	75	25	75
M	1	1	2	2	3	3	4	4	5	5	6	6
N	6	6	8	8	10	10	12	12	14	14	16	16
P	25	75	125	175	225	275	325	375	425	475	525	575
KG	2.34	2.53	2.73	2.93	3.12	3.32	3.52	3.71	3.91	4.11	4.3	4.5



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **800mm**

Maximum Speed **1000mm/s**

Motor Output **200W**

Ball Screw **Ø16mm**

## Ordering Method

# GTY8 - L10 - 100 - BC - M20B - C4 - 0001

Model

Special Order No.

### Stroke

50-800mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	200W	
T	Delta	40	-	

\*There is no description for models that do not include brakes.

### Ball Screw Lead

05	5mm
10	10mm
20	20mm

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

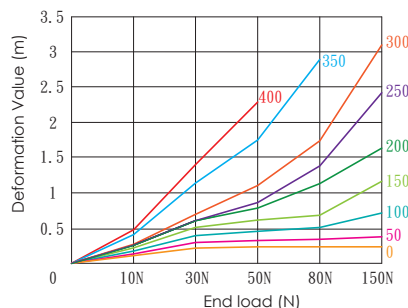
### Limit Sensor

	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor

**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)	5	10	20	
	Maximum Speed (mm/s)	250	500	1000	
	Max payload	Horizontal (kg) <i>(Note2)</i>	50	30	18
		Vertical (kg)	15	8	3
	Rated Thrust (N)	683	341	174	
	Repeatability (mm)	±0.01			
	Lost Motion (mm)	0.1			
	Allowable Input Torque (N.m)	2.2			
	Maximum Acceleration (m/sec <sup>2</sup> )	10			
	Friction Coefficient	<0.01			
<b>Parts Specs</b>	Ball Screw	Basic dynamic load rating Ca (N)	13538	8240	4073
		Basic static load rating Coa (N)	29940	17825	7534
	AC Servo Motor Output (W)	400			
	Ball Screw Ø (mm)	C7Ø16			
	Stroke / Pitch (mm)	50-800mm / 50 mm Pitch			
	Coupling (mm)	10X14X11			
	Home Sensor	Outside	CS-6T (NPN)		

**Shaft Output Deformation Value**



\*This graph is for reference only.

\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

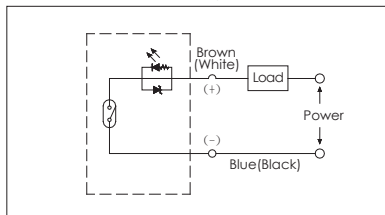
\*Acceleration and deceleration value is set at 0.2 seconds.

Note 1: Must be fitted with an external auxiliary guideway for radial bearing loads if near maximum payload.

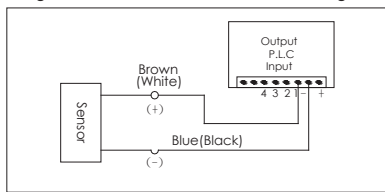
Note 2: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Sensor Layout**

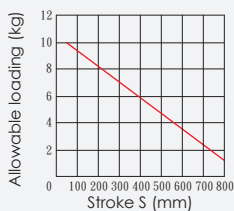
General load : Such as relay or other resistive load



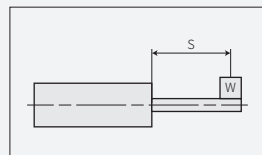
Programmable controller connection diagram



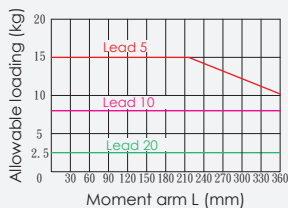
**Allowable installation load**



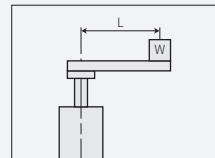
the extensions distance of the load is zero when there is not external auxiliary



**Load in vertical installation**



Calculation conditions:  
3000 rpm / min,  
acceleration and deceleration: 0.2s.



**Suitable Motors**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADDT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADDT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C20602ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C20602FS	ASD-B20221-B

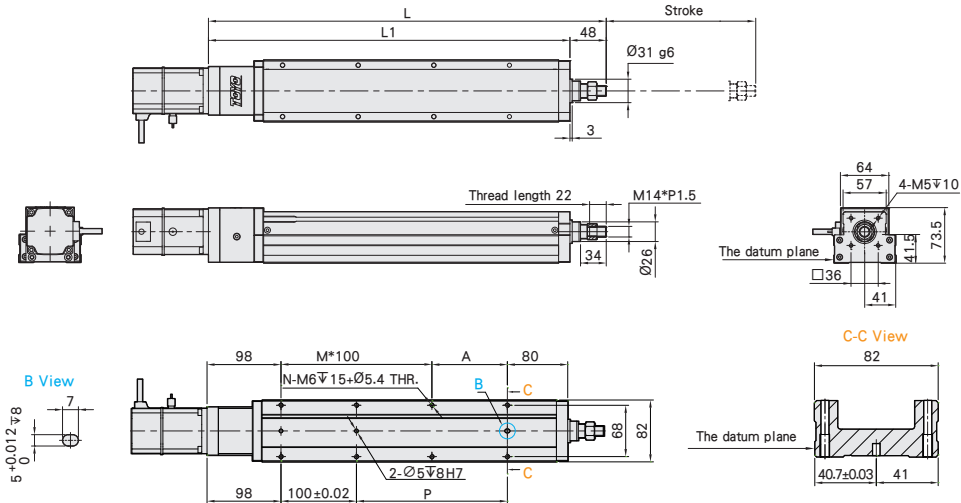
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



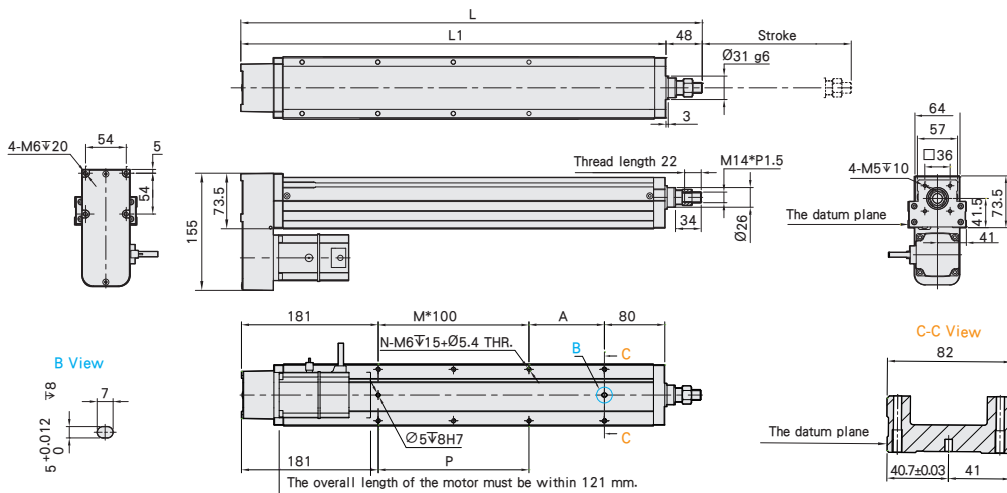
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
L1	328	378	428	478	528	578	628	678	728	778	828	878	928	978	1028	1078
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.08	5.44	5.81	6.17	6.54	6.9	7.27	7.63	8	8.36	8.73	9.09	9.46	9.82	10.19	10.55

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14

\*When the motor with a brake is assembled on the lower side, or the total length is more than the specified limit, it may not use a standard pinhole

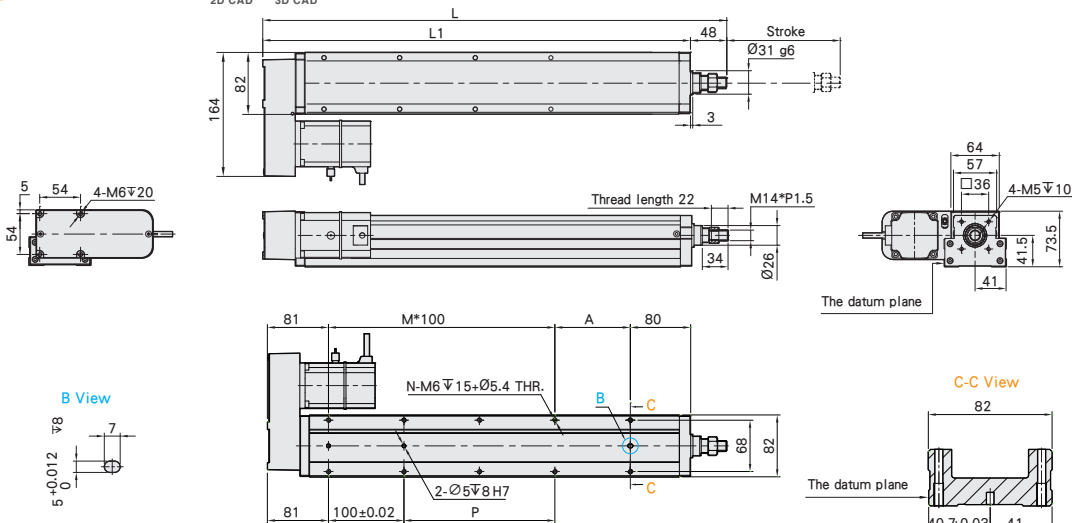
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

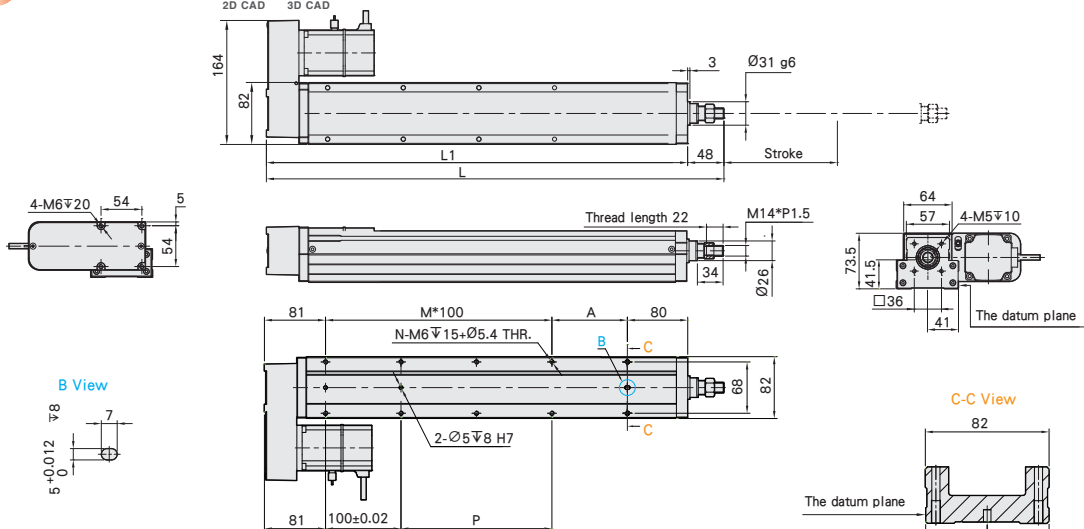


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **800mm**

Maximum Speed **1000mm/s**

Motor Output **400W**

Ball Screw **Ø16mm**

## Ordering Method

# GTY8 - L10 - 100 - BC - M40B - C4 - 0001

Model

Special Order No.

### Stroke

50-800mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*20mm±2 of overtravel included.

### Motor Position

BC	Motor Exposed
BM	Motor Bottom Side
BL	Motor Left Side
BR	Motor Right Side

### Motor Brand · Power Output

M	Mitsubishi	05	-	B
P	Panasonic	10	-	
Y	Yaskawa	20	-	
T	Delta	40	400W	

\*There is no description for models that do not include brakes.

### Ball Screw Lead

05	5mm
10	10mm
20	20mm

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

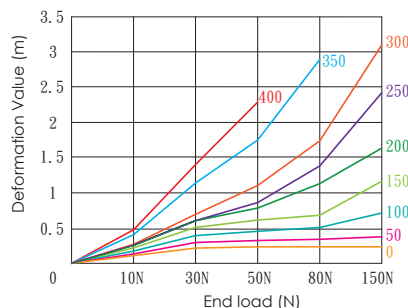
	Outside
3	1 Pc
4	2 Pc
	No Sensor
5	No Sensor



**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)	5	10	20	
	Maximum Speed (mm/s)	250	500	1000	
	Max payload	Horizontal (kg) <i>(Note2)</i>	50	30	18
		Vertical (kg)	15	8	3
	Rated Thrust (N)	1388	694	347	
	Repeatability (mm)	±0.01			
	Lost Motion (mm)	0.1			
	Allowable Input Torque (N.m)	2.2			
	Maximum Acceleration (m/sec <sup>2</sup> )	10			
	Friction Coefficient	<0.01			
<b>Parts Specs</b>	Ball Screw	Basic dynamic load rating Ca (N)	13538	8240	4073
		Basic static load rating Coa (N)	29940	17825	7534
	AC Servo Motor Output (W)	400			
	Ball Screw Ø (mm)	C7Ø16			
	Stroke / Pitch (mm)	50-800mm / 50 mm Pitch			
	Coupling (mm)	10X14			
	Home Sensor	Outside	CS-6T (NPN)		

**Shaft Output Deformation Value**



\*This graph is for reference only.

\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

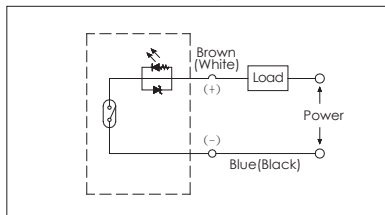
\*Acceleration and deceleration value is set at 0.2 seconds.

Note 1: Must be fitted with an external auxiliary guideway for radial bearing loads if near maximum payload.

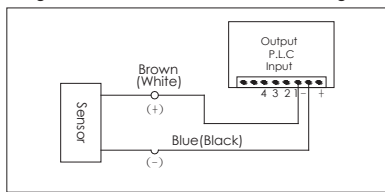
Note 2: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Sensor Layout**

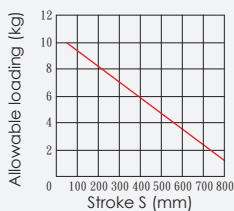
General load : Such as relay or other resistive load



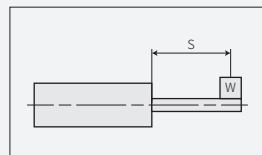
Programmable controller connection diagram



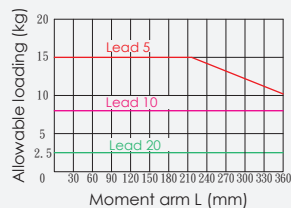
**Allowable installation load**



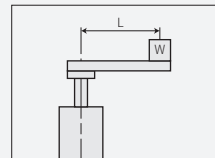
the extensions distance of the load is zero when there is not external auxiliary



**Load in vertical installation**



Calculation conditions:  
3000 rpm / min,  
acceleration and  
deceleration: 0.2s.



**Suitable Motors**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

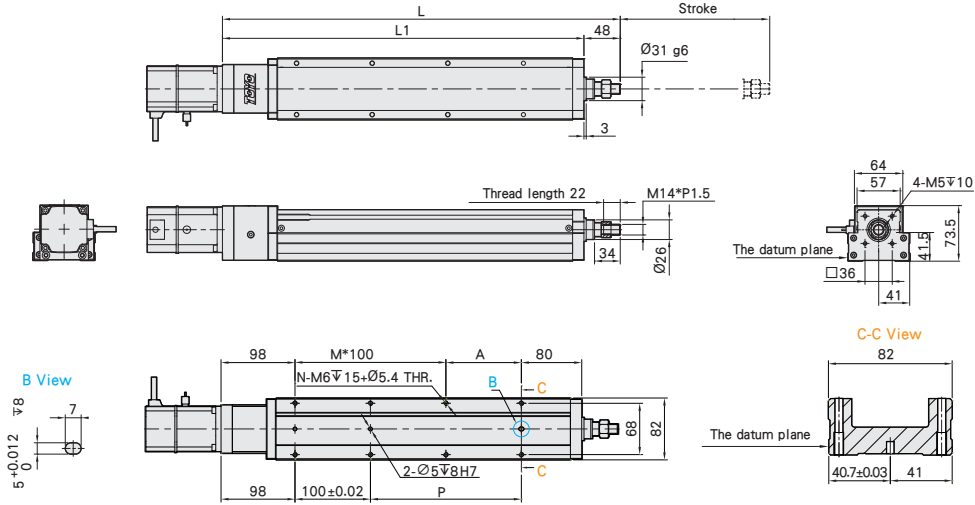
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



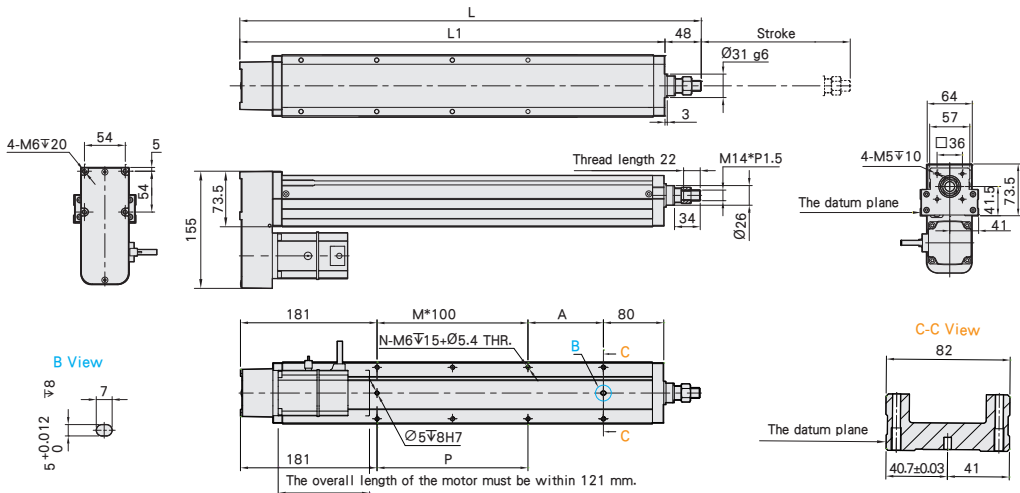
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
L1	328	378	428	478	528	578	628	678	728	778	828	878	928	978	1028	1078
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.08	5.44	5.81	6.17	6.54	6.9	7.27	7.63	8	8.36	8.73	9.09	9.46	9.82	10.19	10.55

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
N	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14

\*When the motor with a brake is assembled on the lower side, or the total length is more than the specified limit, it may not use a standard pinhole

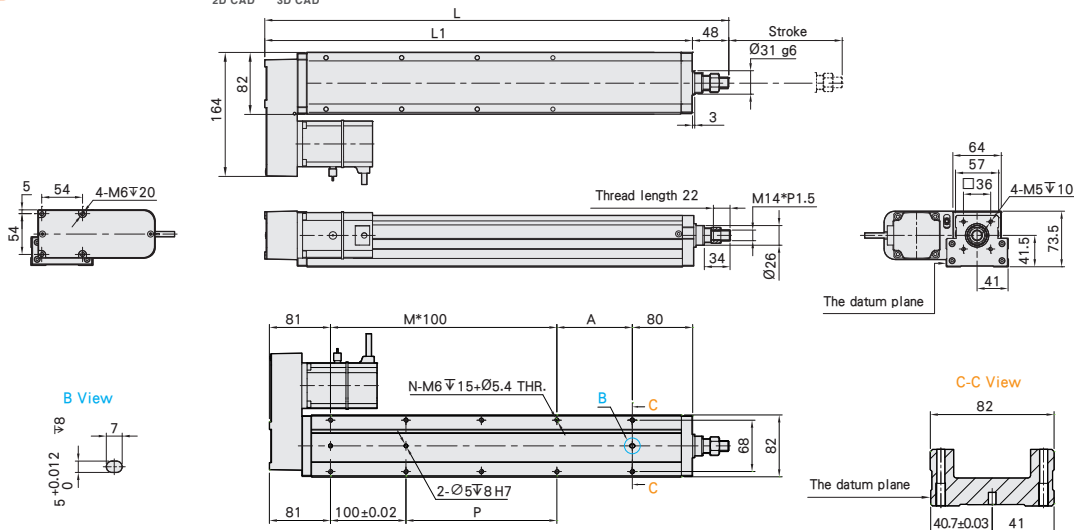
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

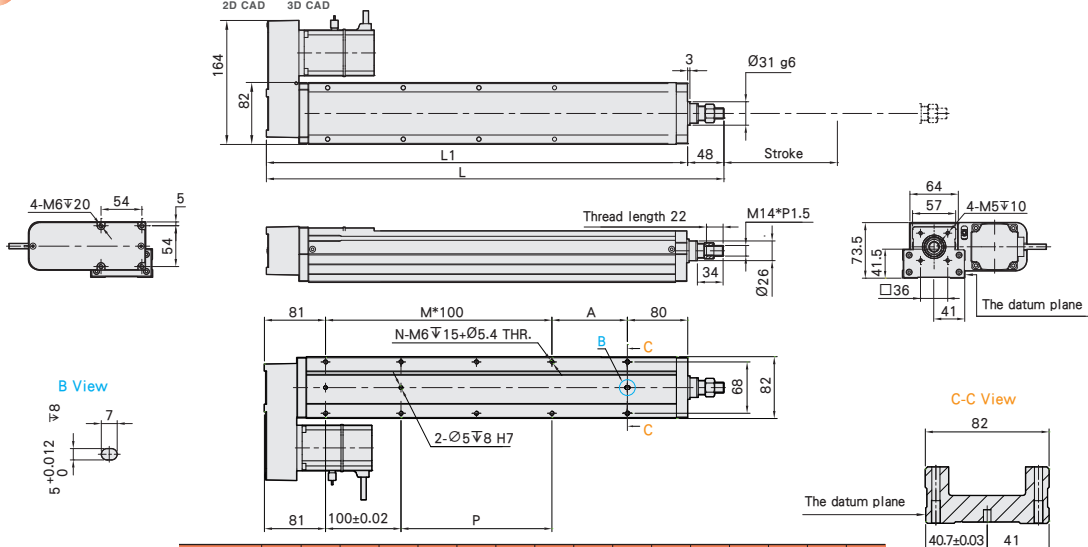


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	359	409	459	509	559	609	659	709	759	809	859	909	959	1009	1059	1109
L1	311	361	411	461	511	561	611	661	711	761	811	861	911	961	1011	1061
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
KG	5.82	6.17	6.53	6.88	7.24	7.59	7.95	8.3	8.66	9.01	9.37	9.72	10.08	10.43	10.79	11.14

**MEMO**

# Electric Actuator

# ETH Series

## Standard/Ball Screw

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

## CONTENTS

### Standard/Ball Screw Type

#### MEDIUM

ETH13



Width 135mm  
Max. stroke 1050mm ..... 157  
Max. payload 70kg

#### LARGE

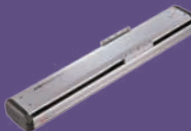
ETH22M



Width 220mm  
Max. stroke 2400mm ..... 207  
Max. payload 130kg

#### MEDIUM

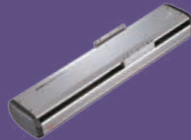
ETH14



Width 135mm  
Max. stroke 1050mm ..... 169  
Max. payload 110kg

#### LARGE

ETH17



Width 170mm  
Max. stroke 1250mm ..... 181  
Max. payload 120kg

#### LARGE

ETH22



Width 220mm  
Max. stroke 1500mm ..... 191  
Max. payload 150kg

#### LARGE

ETH17M



Width 170mm  
Max. stroke 2200mm ..... 197  
Max. payload 120kg

# Specs Index - Standard Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Specs		Maximum Payload (kg) <sup>*3</sup>		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	ETH13	200W	135	±0.01	16	5	70	17	250
							10	47	12	500
							20	24	6	1000
							32	13	-	1600
		ETH13	400W	135	±0.01	16	5	70	17	250
							10	47	12	500
							20	24	6	1000
							32	13	-	1600
		ETH14	200W	135	±0.01	16	5	95	27	250
							10	75	18	500
							20	35	7	1000
							32	15	-	1600
		ETH14	400W	135	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600
		ETH17	400W	170	±0.01	20	5	120	40	250
							10	110	30	500
							20	75	14	1000
							40	22	7	2000
		ETH17	750W	170	±0.01	20	5	120	50	250
							10	120	40	500
							20	83	25	1000
							40	43	12	2000
ETH22	750W	220	±0.01	25	5	150	55	250		
					10	150	45	500		
					25	105	20	1250		
					40	43	12	2000		

\*1 The maximum speed is based on the servo motor's maximum rpm of 3,000.

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>																	Speed		Page													
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500		
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																225	200	175	150	125	100											
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1000																900	800	700	600	500	400											
1600																1440	1280	1120	960	800	640											
250																	225	200	175	150	125	100										
500																450	400	350	300	250	200											
1250																	1125	1000	875	750	625	500										
2000																	1800	1600	1400	1200	1000	800	600									

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# Spec Index - Standard Ball Screw Actuator

## Long Stroke Type

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Specs		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Ball Screw	ETH17M	400W	170	±0.01	16	5	110	33	200
							10	90	22	400
							20	40	10	800
							32	30	8	1280
		ETH17M	750W	170	±0.01	16	5	120	40	200
							10	95	25	400
							20	50	15	800
							32	35	12	1280
		ETH22M	750W	220	±0.01	20	5	130	50	200
							10	130	40	400
							20	85	25	800
							40	43	12	1600

\*1 The maximum speeds of the ETH17M and the ETH22M are based on the servo motor's maximum rpm of 2,400. Customizable for clean room type.



Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>																								Speed				Page
Stroke	800	850	900	950	1000	1100	1200	1300	1400	1500	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	
						200							175				150				125							197
						400							350				300				250							
						800							700				600				500							
						1280							1120				960				800							
						200							175				150				125							203
						400							350				300				250							
						800							700				600				500							
						1280							1120				960				800							
							200														175				150			207
							400														350				300			
							800														700				600			
							1600														1400				1200			

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# ETH13 1-axis

▶ Ball Screw Drive

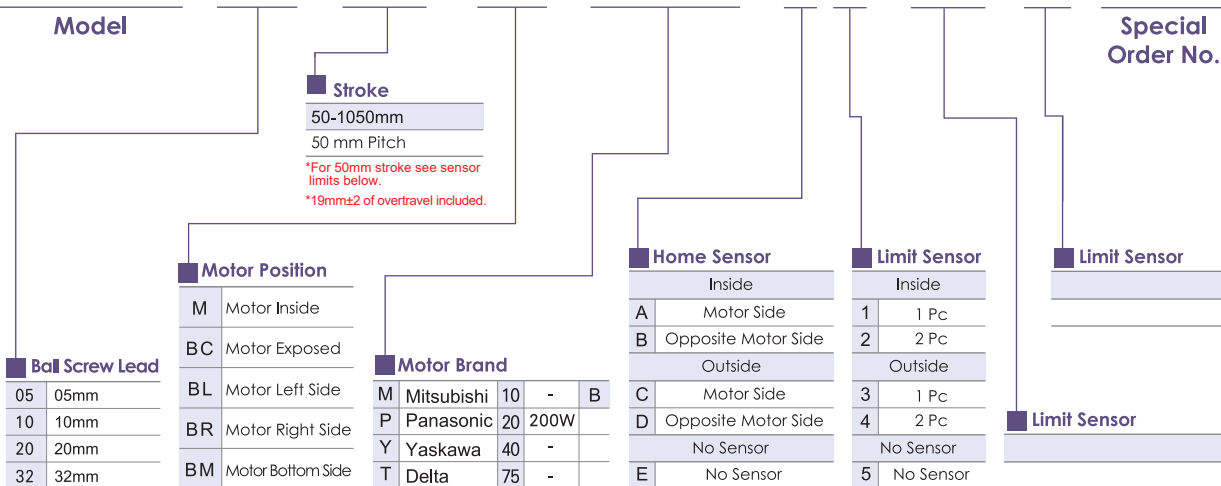


The picture above is not to scale. See the drawing for actual dimensions.

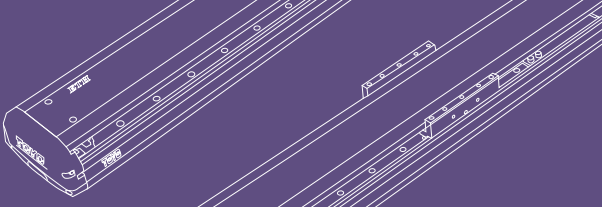
Maximum Stroke <b>1050mm</b>	Maximum Speed <b>1600mm/s</b>	Motor Output <b>200W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
------------------------------	-------------------------------	--------------------------	--------------------------------------	---------------------------------

## Ordering Method

# ETH13 - L5 - 50 - M - M20B - C 4 - NR - P - 0001



\*There is no description for models that do not include brakes.



**Specifications**

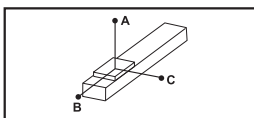
<b>Actuator Specs</b>	Ball Screw Lead (mm)	5    10    20    32					
	Maximum Speed (mm/s)	250    500    1000    1600					
	Max payload	Horizontal (kg)	70	47	24	13	
		Vertical (kg)	17	12	6	-	
	Rated Thrust (N)		683	341	174	107	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	2010	1787	1608	1340
			2540 km of travel	543	482	434	362
		Static Horizontal (kg)	4412				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		11				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		3.1				
	Maximum Acceleration (in/sec)		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1050mm / 50mm Pitch					

<b>Parts Specs</b>	Ball Screw Lead (mm)	5    10    20    32				
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	2412			
		Basic static load rating Co (KG)	4412			
	Fixed Bearing	Basic dynamic load rating Cor (N)	7100			
		Basic static load rating Cr (N)	3040			
	AC Servo Motor Output (W)		200			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X14/11 <sup>(Note 1)</sup>			
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

\*When the stroke is over 750mm, ball screw whipping may occur.  
We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

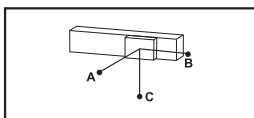
Note 1: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Allowable Overhang**



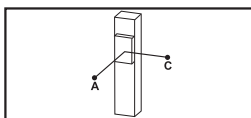
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	40kg	795	63	225
	55kg	558	43	155
	70kg	422	32	115
10 Lead	25kg	588	95	276
	35kg	410	65	190
	47kg	295	46	135
20 Lead	6kg	1068	355	710
	15kg	416	136	275
	24kg	252	81	166
32 Lead	7kg	385	205	298
	13kg	204	106	156
	-	-	-	-



(Unit : mm)

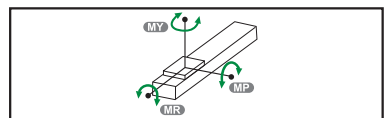
Wall Installation	A	B	C	
5 Lead	30kg	310	88	1066
	50kg	172	49	620
	70kg	115	32	422
10 Lead	20kg	351	122	743
	30kg	225	78	484
	47kg	135	46	294
20 Lead	5kg	852	428	1227
	12kg	345	173	522
	24kg	166	81	253
32 Lead	6kg	350	240	453
	13kg	155	106	204
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	5kg	580	580
	11kg	264	264
	17kg	170	170
10 Lead	4kg	644	644
	8kg	322	322
	12kg	215	215
20 Lead	3kg	667	667
	6kg	335	335
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	174
<b>MP</b>	175
<b>MR</b>	153

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	36.1
<b>MP</b>	36.1
<b>MR</b>	153.3

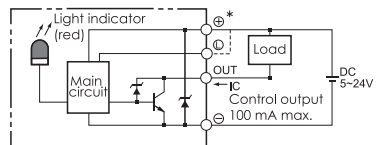
**2540 km of travel** (Unit : N.m)

<b>MY</b>	9.5
<b>MP</b>	9.5
<b>MR</b>	40.4

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADHT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADHT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C2060ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C2060FS	ASD-B20221-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

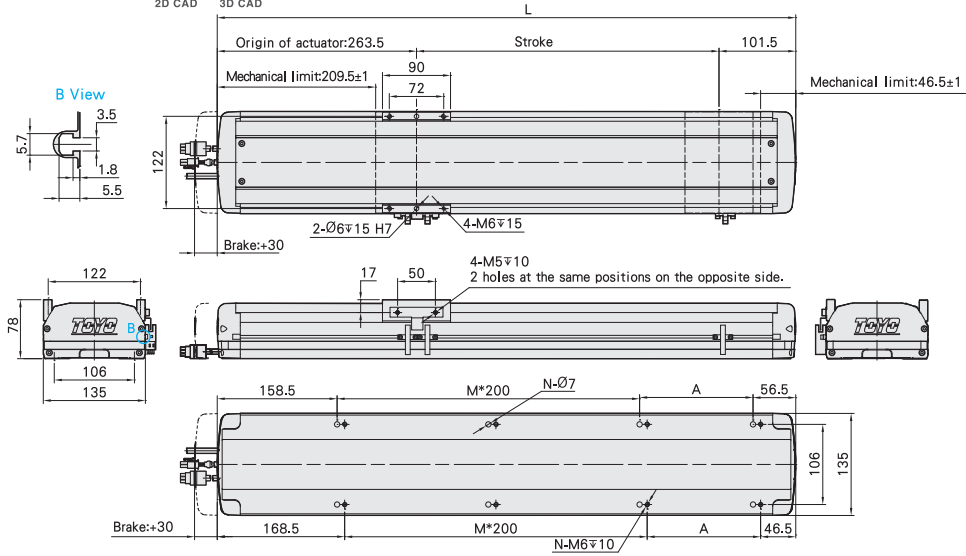
## Motor Hidden In / Motor Exposed

### M Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



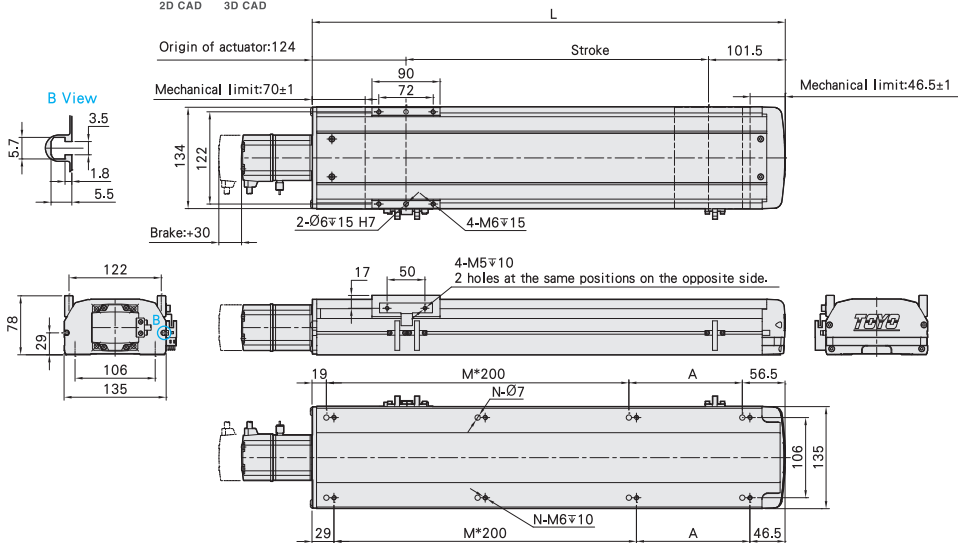
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	415	465	515	565	615	665	715	765	815	865	915	965	1015	1065	1115	1165	1215	1265	1315	1365	1415
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	8.3	8.86	9.42	9.98	10.54	11.1	11.66	12.22	12.78	13.34	13.9	14.46	15.02	15.58	16.14	16.7	17.26	17.82	18.38	18.94	19.5

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	275.5	325.5	375.5	425.5	475.5	525.5	575.5	625.5	675.5	725.5	775.5	825.5	875.5	925.5	975.5	1025.5	1075.5	1125.5	1175.5	1225.5	1275.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	7.4	7.96	8.52	9.08	9.64	10.2	10.76	11.32	11.88	12.44	13	13.56	14.12	14.68	15.24	15.8	16.36	16.92	17.48	18.04	18.6

- Structure
- Belt in Guideway Ball Screw Type GTH / GTY
- Belt Screw Type ETH
- Belt Type ETB / M
- Clean Room Ball Screw Type ECH
- Clean Room Belt Type ECB
- Reference

## Motor Left Side / Motor Right Side

BL

Motor Left Side

2D CAD

3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

Origin of actuator: 117    Stroke    101.5

Mechanical limit: 63±1    90    72    2-Ø6 $\pm$ 15 H7    4-M6 $\pm$ 15    Mechanical limit: 46.5±1

210.5    135    122

17    50    4-M5 $\pm$ 10    2 holes at the same positions on the opposite side.

87    M\*200    A    81.5

N-Ø7

97    M\*200    N-M6 $\pm$ 10    71.5

106    135

B View: 3.5, 5.7, 1.8, 5.5

122, 78, 29, 106, 135, 210.5

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

BR

Motor Right Side

2D CAD

3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

Origin of actuator: 117    Stroke    101.5

Mechanical limit: 63±1    90    72    2-Ø6 $\pm$ 15 H7    4-M6 $\pm$ 15    Mechanical limit: 46.5±1

210.5    135    122

17    50    4-M5 $\pm$ 10    2 holes at the same positions on the opposite side.

87    M\*200    N-Ø7    A    81.5

N-M6 $\pm$ 10

97    M\*200    71.5

106    135

B View: 3.5, 5.7, 1.8, 5.5

122, 78, 29, 106, 135, 210.5

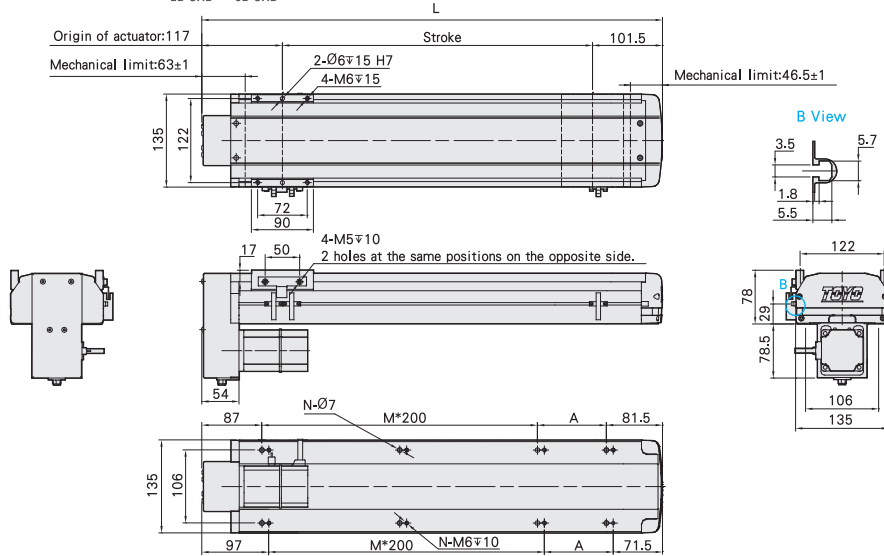
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

- 1 axis
- ETH
- ETH13
- ETH14
- ETH17
- ETH22
- ETH17M
- ETH22M

## Motor Bottom Side

Unit : mm

BM Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

# ETH13 1-axis

▶ Ball Screw Drive

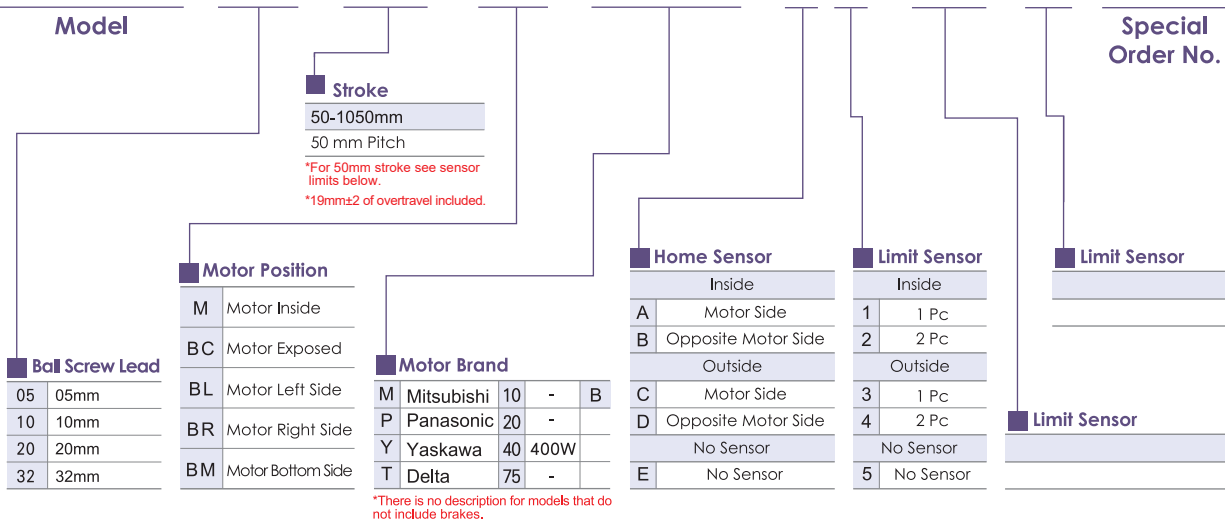


The picture above is not to scale. See the drawing for actual dimensions.

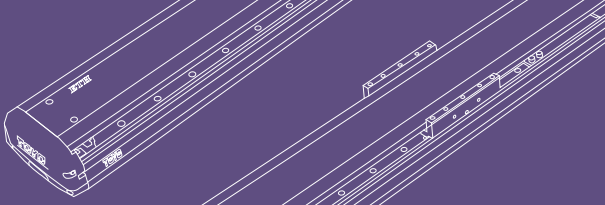
Maximum Stroke <b>1050mm</b>	Maximum Speed <b>1600mm/s</b>	Motor Output <b>400W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
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## Ordering Method

# ETH13 - L5 - 50 - M - M40B - C 4 - NR - P - 0001







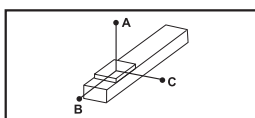
**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)	70	47	24	13	
		Vertical (kg)	17	12	6	-	
	Rated Thrust (N)		1388	694	433	347	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	2010	1787	1608	1340
			2540 km of travel	543	482	434	362
		Static Horizontal (kg)		4412			
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		11				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		3.1				
	Maximum Acceleration (in/sec)		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1050mm / 50mm Pitch					

<b>Parts Specs</b>	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	2412			
		Basic static load rating Co (KG)	4412			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3040			
		Basic static load rating Cr (N)	7100			
	AC Servo Motor Output (W)		400			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X14			
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

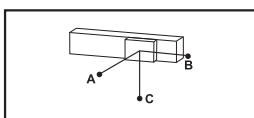
\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



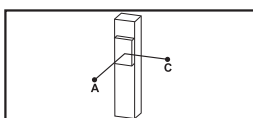
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	40kg	795	63	225
	55kg	558	43	155
	70kg	422	32	115
10 Lead	25kg	588	95	276
	35kg	410	65	190
	47kg	295	46	135
20 Lead	6kg	1068	355	710
	15kg	416	136	275
	24kg	252	81	166
32 Lead	7kg	385	205	298
	13kg	204	106	156
	-	-	-	-



(Unit : mm)

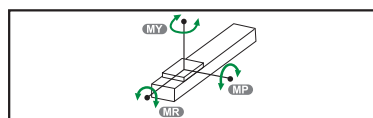
Wall Installation	A	B	C	
5 Lead	30kg	310	88	1066
	50kg	172	49	620
	70kg	115	32	422
10 Lead	20kg	351	122	743
	30kg	225	78	484
	47kg	135	46	294
20 Lead	5kg	852	428	1227
	12kg	345	173	522
	24kg	166	81	253
32 Lead	6kg	350	240	453
	13kg	155	106	204
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	5kg	580	580
	11kg	264	264
	17kg	170	170
10 Lead	4kg	644	644
	8kg	322	322
	12kg	215	215
20 Lead	3kg	667	667
	6kg	335	335
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	174
<b>MP</b>	175
<b>MR</b>	153

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

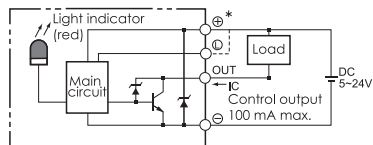
**50 km of travel** (Unit : N.m)

<b>MY</b>	36.1
<b>MP</b>	36.1
<b>MR</b>	153.3

**2540 km of travel** (Unit : N.m)

<b>MY</b>	9.5
<b>MP</b>	9.5
<b>MR</b>	40.4

**Sensor Layout**



**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

1 axis  
ETH

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

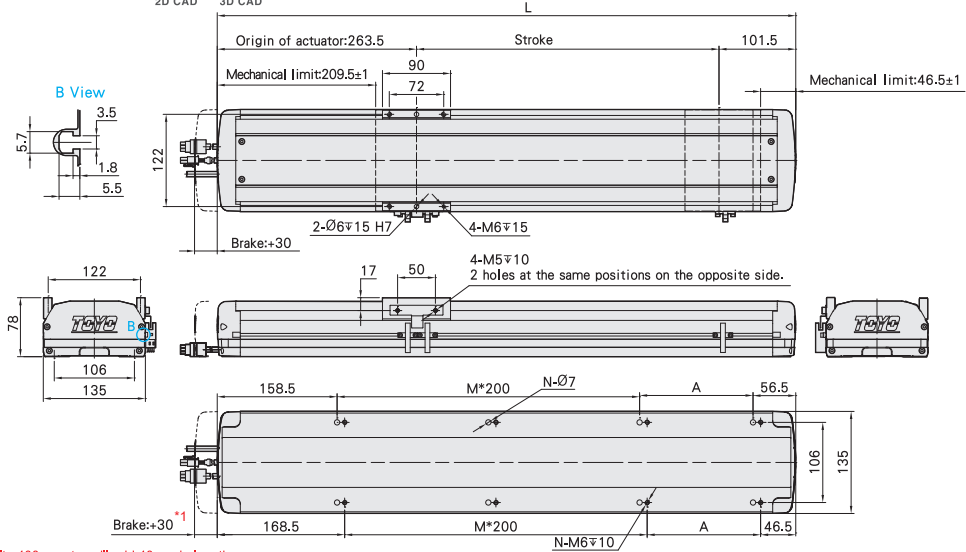
### Motor Hidden In / Motor Exposed

#### M Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



\*1 Using a Delta 400w motor will add 40mm in length

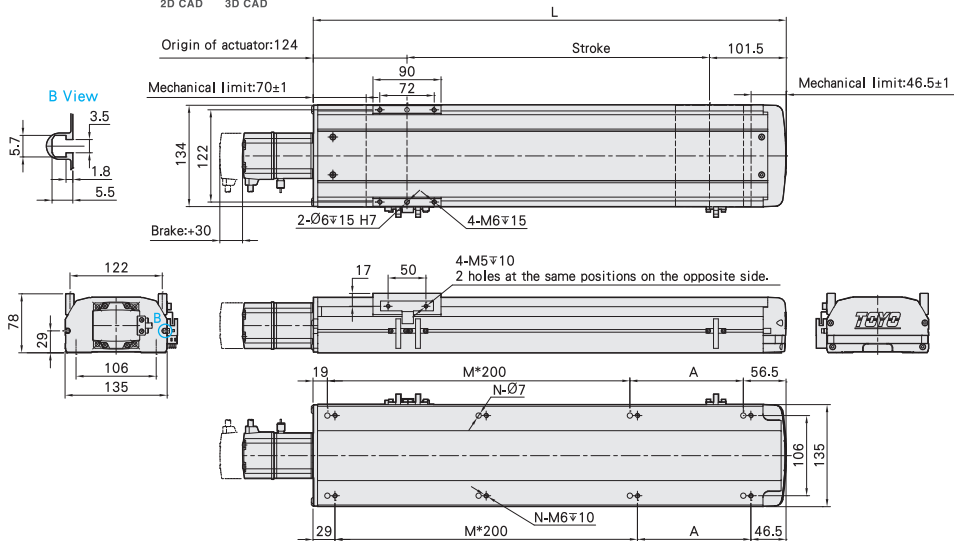
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	415	465	515	565	615	665	715	765	815	865	915	965	1015	1065	1115	1165	1215	1265	1315	1365	1415
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	8.3	8.86	9.42	9.98	10.54	11.1	11.66	12.22	12.78	13.34	13.9	14.46	15.02	15.58	16.14	16.7	17.26	17.82	18.38	18.94	19.5

#### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	275.5	325.5	375.5	425.5	475.5	525.5	575.5	625.5	675.5	725.5	775.5	825.5	875.5	925.5	975.5	1025.5	1075.5	1125.5	1175.5	1225.5	1275.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	7.4	7.96	8.52	9.08	9.64	10.2	10.76	11.32	11.88	12.44	13	13.56	14.12	14.68	15.24	15.8	16.36	16.92	17.48	18.04	18.6

Motor Left Side /  
Motor Right Side

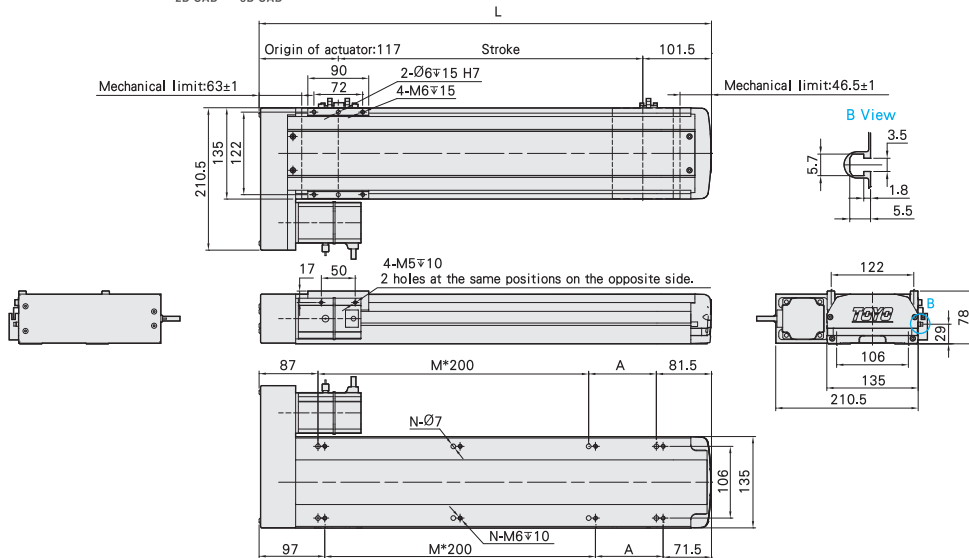
BL

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

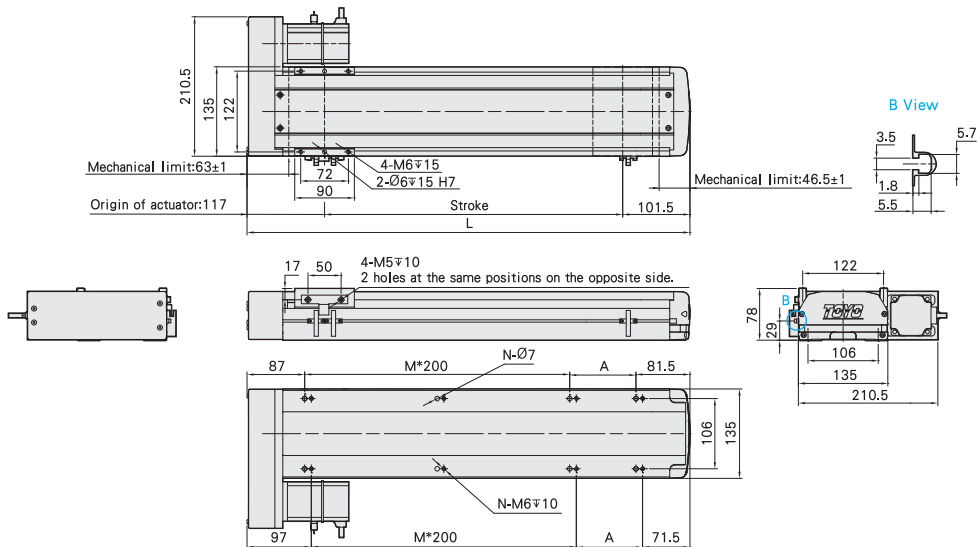
BR

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

1 axis  
ETH

ETH13

ETH14

ETH17

ETH22

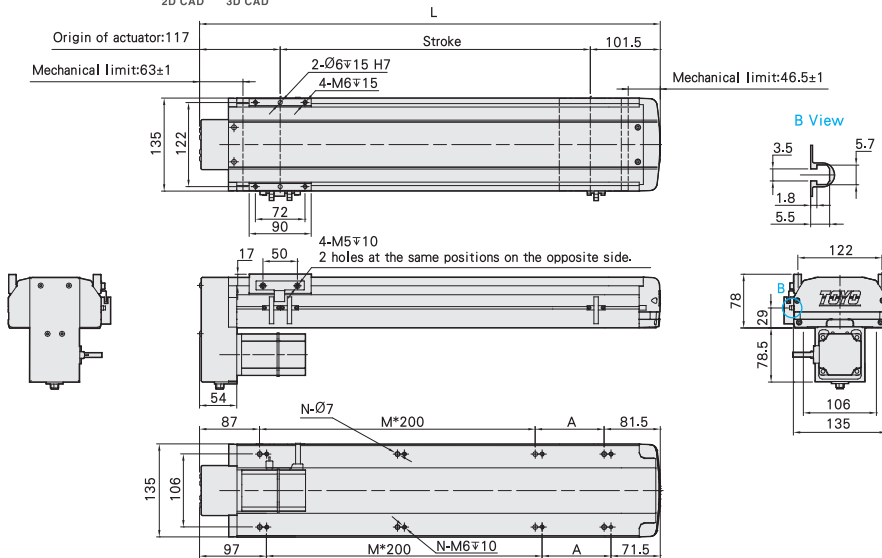
ETH17M

ETH22M

## Motor Bottom Side

Unit: mm

BM Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
KG	7.94	8.5	9.06	9.62	10.18	10.74	11.3	11.86	12.42	12.98	13.54	14.1	14.66	15.22	15.78	16.34	16.9	17.46	18.02	18.58	19.14

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
**ETH**

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

**ETH13**

ETH14

ETH17

ETH22

ETH17M

ETH22M

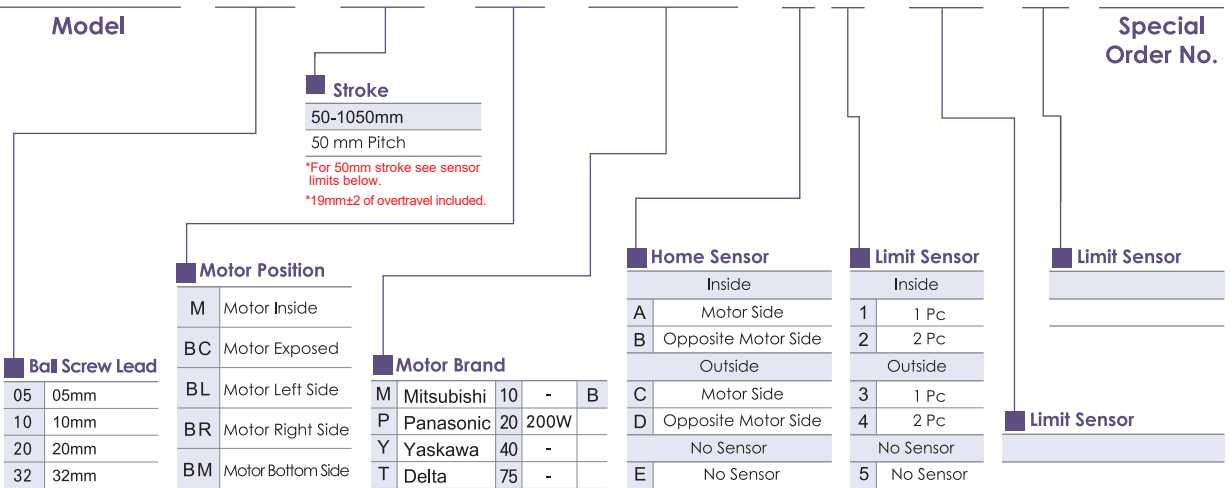


The picture above is not to scale. See the drawing for actual dimensions.

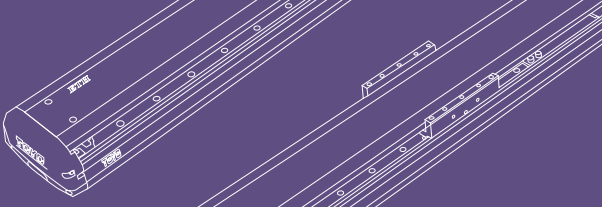
Maximum Stroke <b>1050mm</b>	Maximum Speed <b>1600mm/s</b>	Motor Output <b>200W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
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### Ordering Method

## ETH14 - L5 - 50 - M - M20B - C 4 - NR - P - 0001



\*There is no description for models that do not include brakes.



**Specifications**

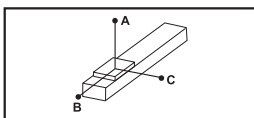
Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)	95	75	35	15	
		Vertical (kg)	27	18	7	-	
	Rated Thrust (N)		683	341	174	107	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		11				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		3.1				
	Maximum Acceleration (in/sec)		10				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		50-1050mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	4824			
		Basic static load rating Co (KG)	8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3040			
		Basic static load rating Cr (N)	7100			
	AC Servo Motor Output (W)		200			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X14/11 <sup>(Note 1)</sup>			
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

\*When the stroke is over 750mm, ball screw whipping may occur.  
We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

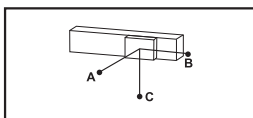
Note 1: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Allowable Overhang**



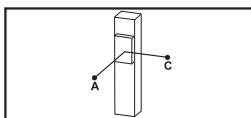
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	60kg	2512	242	232
	80kg	1811	172	164
	95kg	1537	138	133
10 Lead	30kg	2727	470	430
	50kg	1577	266	242
	75kg	1004	164	150
20 Lead	10kg	2304	1222	1028
	22kg	1443	540	451
	35kg	1005	324	271
32 Lead	10kg	1555	840	623
	15kg	1033	545	405
	-	-	-	-



(Unit : mm)

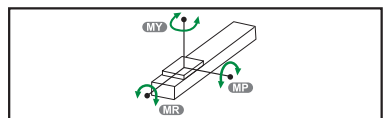
Wall Installation	A	B	C	
5 Lead	55kg	257	269	2883
	75kg	178	186	2000
	95kg	133	138	1537
10 Lead	35kg	363	395	2368
	55kg	218	238	1445
	75kg	150	164	1004
20 Lead	12kg	854	1019	2552
	20kg	500	596	1588
	35kg	271	324	1005
32 Lead	8kg	787	1060	1980
	15kg	405	545	1033
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	15kg	1118	1118
	22kg	770	770
	27kg	626	626
10 Lead	10kg	1500	1500
	14kg	1072	1072
	18kg	833	833
20 Lead	4kg	2980	2980
	7kg	1700	1700
-	-	-	

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	551
<b>MP</b>	552
<b>MR</b>	485

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	210.1
<b>MP</b>	210.1
<b>MR</b>	208.8

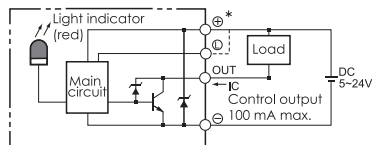
**2540 km of travel** (Unit : N.m)

<b>MY</b>	55.3
<b>MP</b>	55.3
<b>MR</b>	54.9

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADDT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADDT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C2060ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C2060FS	ASD-B20221-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

### Motor Hidden In / Motor Exposed

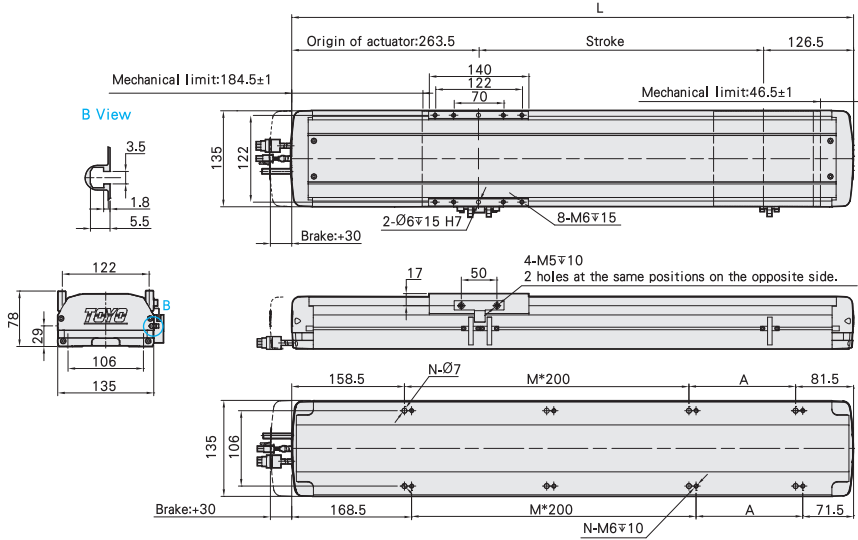
M

Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	9.5	10.06	10.62	11.18	11.74	12.3	12.86	13.42	13.98	14.54	15.1	15.66	16.22	16.78	17.34	17.9	18.46	19.02	19.58	20.14	20.7

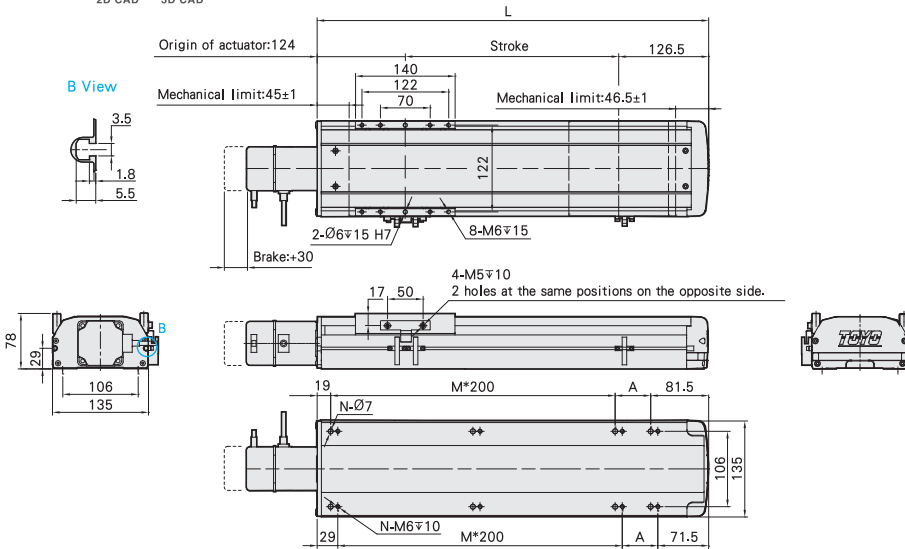
BC

Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5	1050.5	1100.5	1150.5	1200.5	1250.5	1300.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	8.75	9.3	9.85	10.4	10.95	11.5	12.05	12.6	13.15	13.7	14.25	14.8	15.35	15.9	16.45	17	17.55	18.1	18.65	19.2	19.75



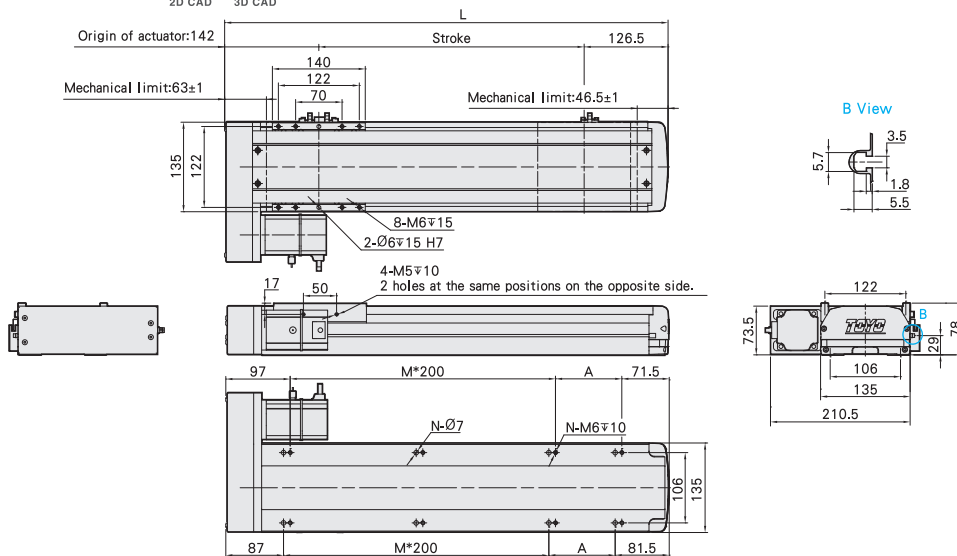
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



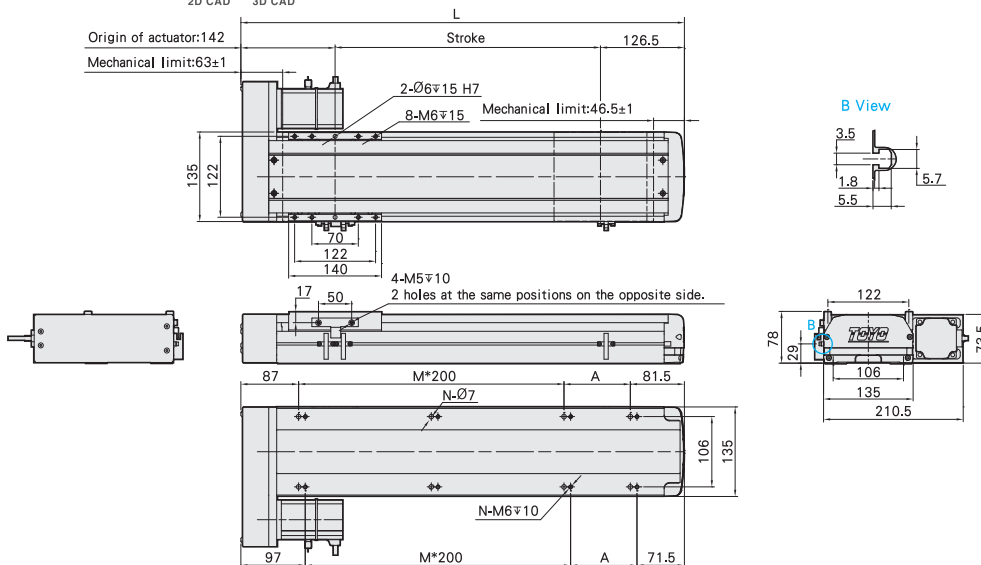
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2

## Motor Bottom Side

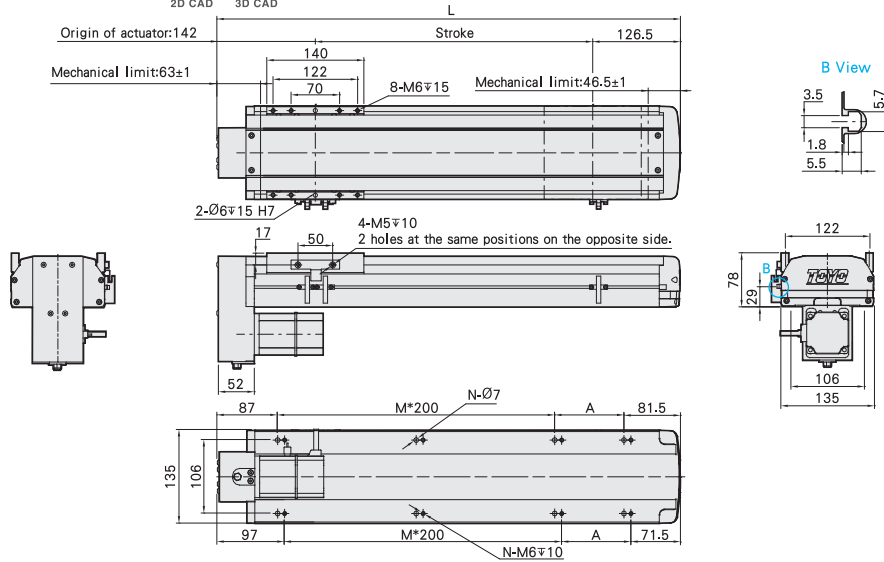
BM

Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
**ETH**

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

**ETH14**

ETH17

ETH22

ETH17M

ETH22M

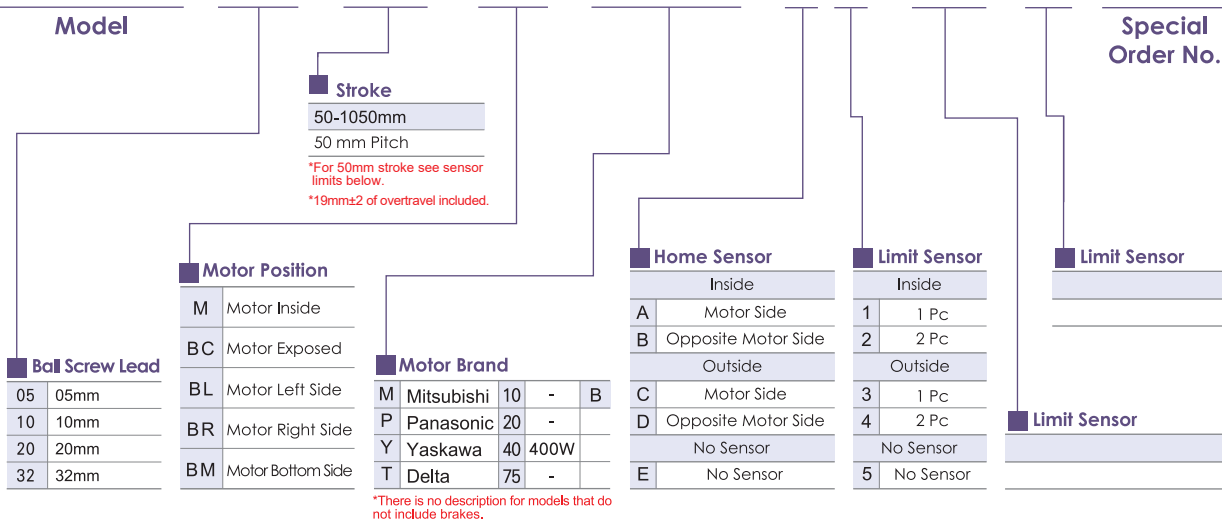


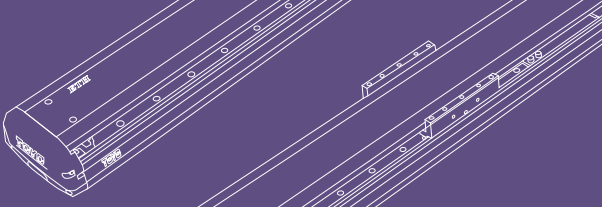
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>1050mm</b>	Maximum Speed <b>1600mm/s</b>	Motor Output <b>400W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
------------------------------	-------------------------------	--------------------------	--------------------------------------	---------------------------------

### Ordering Method

## ETH14 - L5 - 50 - M - M40B - C 4 - NR - P - 0001





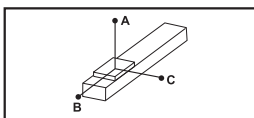
**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)	110	88	40	30	
		Vertical (kg)	33	22	10	8	
	Rated Thrust (N)		1388	694	347	218	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		11				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		3.1				
	Maximum Acceleration (in/sec)		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1050mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	4824			
		Basic static load rating Co (KG)	8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3040			
		Basic static load rating Cr (N)	7100			
	AC Servo Motor Output (W)		400			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X14			
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

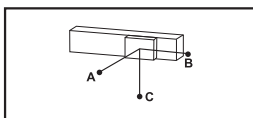
\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



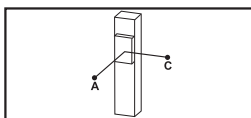
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	60kg	2512	242	232
	80kg	1811	172	164
	110kg	1284	114	108
10 Lead	30kg	2727	470	430
	50kg	1577	266	242
	88kg	854	134	122
20 Lead	10kg	2304	1222	1028
	22kg	1443	540	451
	40kg	860	277	233
32 Lead	15kg	1033	545	405
	25kg	604	311	233
	30kg	495	251	188



(Unit : mm)

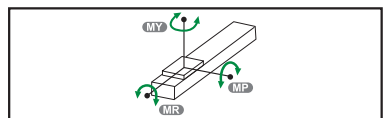
Wall Installation	A	B	C	
5 Lead	55kg	257	269	2883
	75kg	178	186	2000
	110kg	108	114	1284
10 Lead	35kg	363	395	2368
	55kg	218	238	1445
	88kg	123	134	854
20 Lead	12kg	854	1019	2552
	20kg	500	596	1588
	40kg	233	277	860
32 Lead	15kg	405	545	1033
	30kg	188	251	495
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	15kg	1118	1118
	22kg	770	770
	33kg	513	513
10 Lead	10kg	1500	1500
	14kg	1072	1072
	22kg	682	682
20 Lead	7kg	1700	1700
	10kg	1188	1188
	-	-	-
32 Lead	5kg	1503	1503
	8kg	944	944
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	551
<b>MP</b>	552
<b>MR</b>	485

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	210.1
<b>MP</b>	210.1
<b>MR</b>	208.8

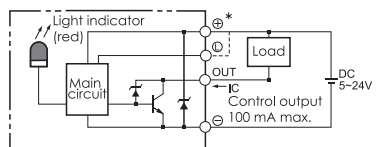
**2540 km of travel** (Unit : N.m)

<b>MY</b>	55.3
<b>MP</b>	55.3
<b>MR</b>	54.9

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MADHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MADHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

### Motor Hidden In / Motor Exposed

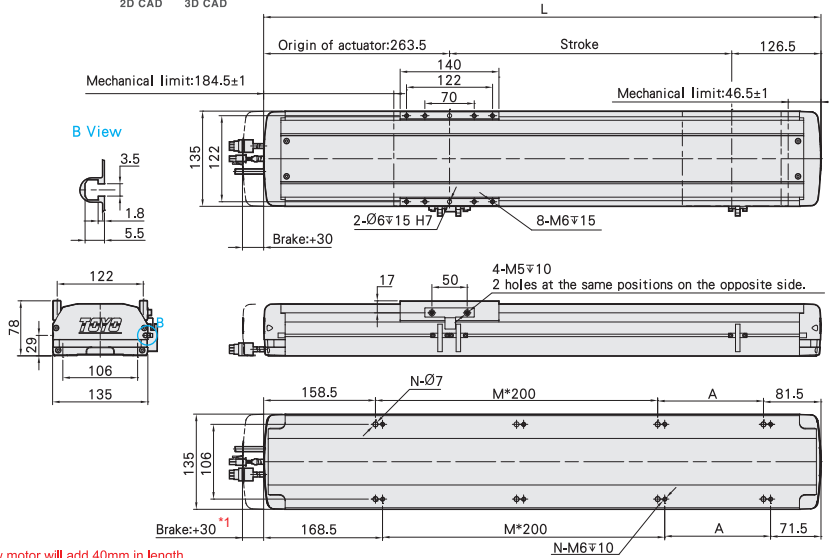
M

Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



\*Using a Delta 400w motor will add 40mm in length

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	9.5	10.06	10.62	11.18	11.74	12.3	12.86	13.42	13.98	14.54	15.1	15.66	16.22	16.78	17.34	17.9	18.46	19.02	19.58	20.14	20.7

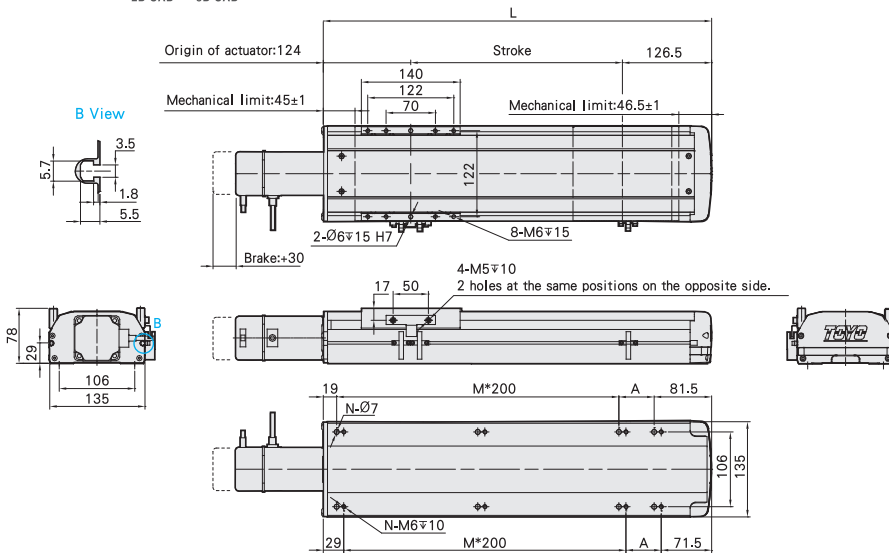
BC

Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5	1050.5	1100.5	1150.5	1200.5	1250.5	1300.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	8.75	9.3	9.85	10.4	10.95	11.5	12.05	12.6	13.15	13.7	14.25	14.8	15.35	15.9	16.45	17	17.55	18.1	18.65	19.2	19.75

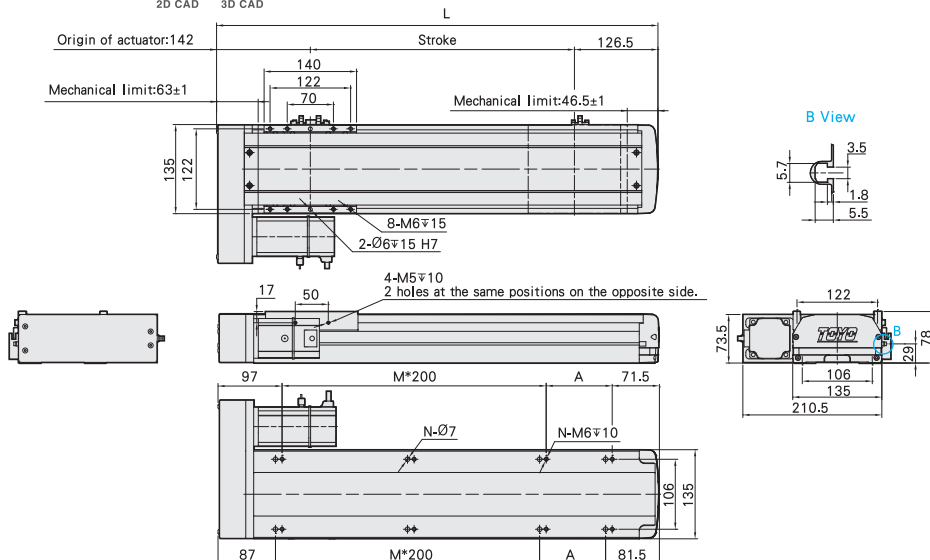
Motor Left Side /  
Motor Right Side

**BL** Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



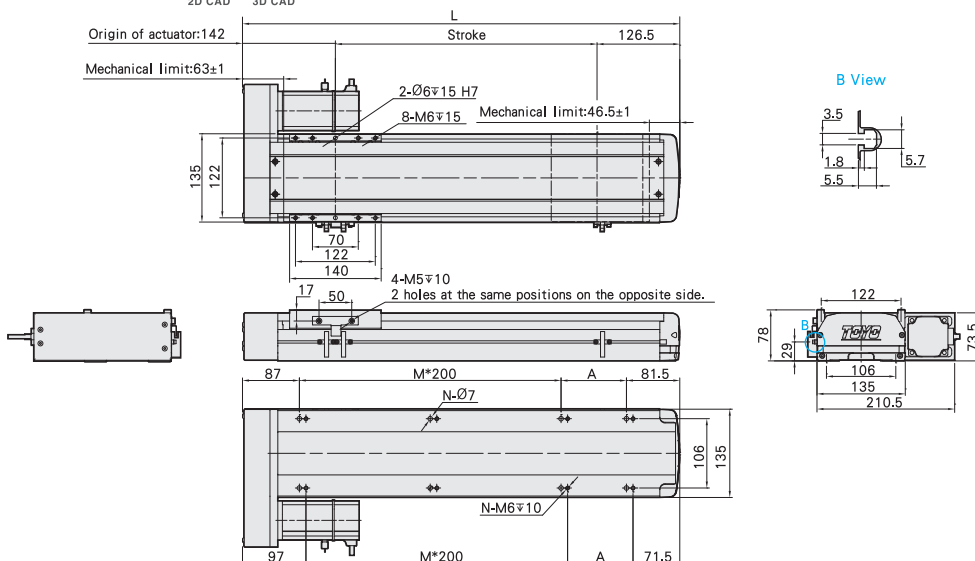
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2

**BR** Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

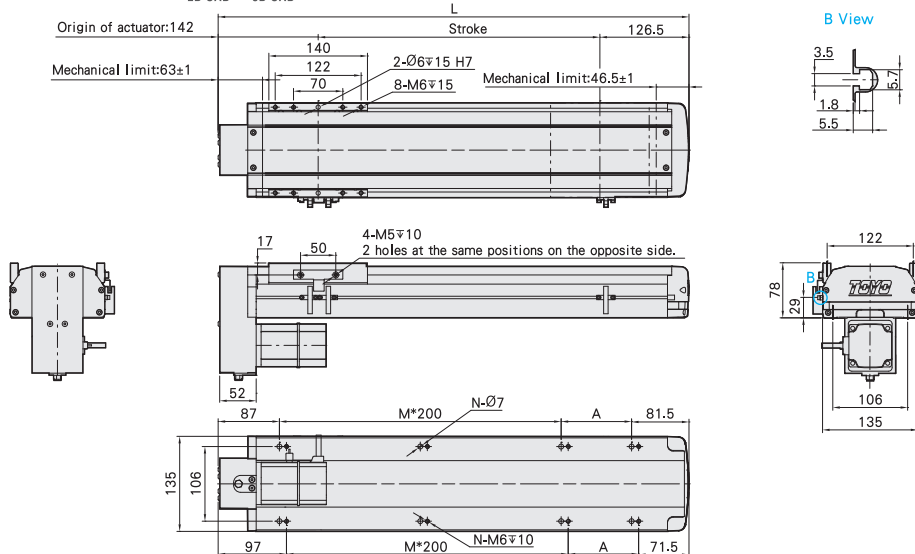


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2

## Motor Bottom Side

BM Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	12	14	14
KG	9.4	9.94	10.48	11.02	11.56	12.1	12.64	13.18	13.72	14.26	14.8	15.34	15.88	16.42	16.96	17.5	18.04	18.58	19.12	19.66	20.2



Structure
Built-in Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

**MEMO**

Large empty rectangular area for notes or specifications.

1 axis <b>ETH</b>
ETH13
<b>ETH14</b>
ETH17
ETH22
ETH17M
ETH22M

# ETH17 1-axis

▶ Ball Screw Drive

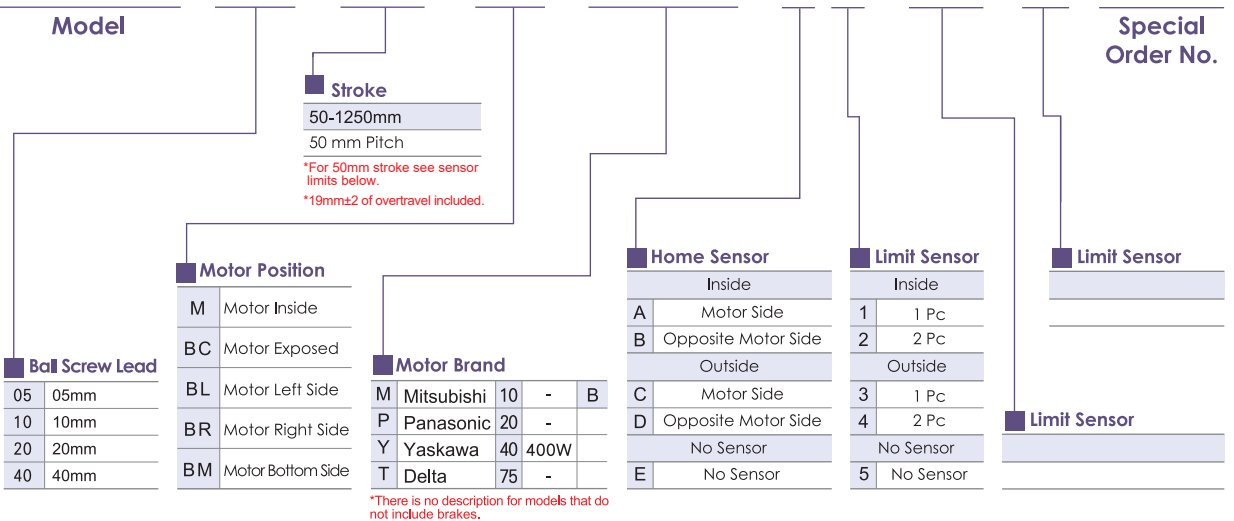


The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>1250mm</b>	Maximum Speed <b>2000mm/s</b>	Motor Output <b>400W</b>	Ball Screw <b>Ø20mm</b>	Linear Guide <b>20X15-2pc</b>
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## Ordering Method

# ETH17 - L5 - 100 - M - M40B - C 4 - NR - P - 0001





Toll

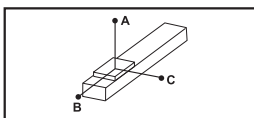
**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)		5	10	20	40	
	Maximum Speed (mm/s)		250	500	1000	2000	
	Max payload	Horizontal (kg)		120	110	75	22
		Vertical (kg)		40	30	14	7
	Rated Thrust (N)		1388	694	347	174	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	6320	5618	5056	3792
			2540 km of travel	1706	1517	1365	1024
		Static Horizontal (kg)	13228				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		14				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		4.5				
	Maximum Acceleration (in/sec)		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1250mm / 50mm Pitch					

<b>Parts Specs</b>	Ball Screw Lead (mm)		5	10	20	40
	Ball Screw	Basic dynamic load rating Ca (N)	17795	10295	5414	6406
		Basic static load rating Coa (N)	45617	22964	10877	15667
	Linear Guide	Basic dynamic load rating C (KG)	7584			
		Basic static load rating Co (KG)	13228			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3380			
		Basic static load rating Cr (N)	7600			
	AC Servo Motor Output (W)		400			
	Ball Screw Ø (mm)		C7 φ 20			
	High Rigidity Linear Guide (mm)		W20XH15			
	Coupling (mm)		12X14			
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

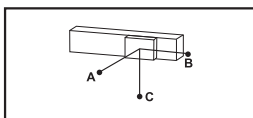
\*When the stroke is over 850mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



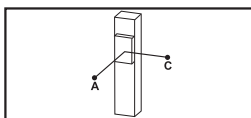
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	70kg	3235	349	408
	90kg	2482	263	306
	120kg	1850	187	217
10 Lead	65kg	1911	338	373
	85kg	1445	248	276
	110kg	1102	182	202
20 Lead	35kg	1666	547	538
	55kg	1030	331	328
	75kg	733	231	230
40 Lead	15kg	1126	740	577
	22kg	755	491	384
	-	-	-	-



(Unit : mm)

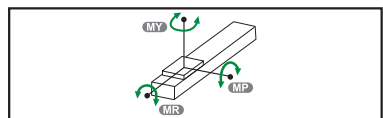
Wall Installation	A	B	C	
5 Lead	75kg	377	322	2988
	95kg	288	246	2333
	120kg	218	187	1850
10 Lead	60kg	408	368	2092
	80kg	296	266	1554
	110kg	202	182	1102
20 Lead	30kg	633	644	1961
	50kg	365	369	1143
	75kg	230	231	733
40 Lead	12kg	729	936	1417
	22kg	384	491	755
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	20kg	1368	1368
	30kg	911	911
	40kg	683	683
10 Lead	15kg	1618	1618
	25kg	970	970
	30kg	808	808
20 Lead	10kg	1922	1922
	14kg	1377	1377
	-	-	-
40 Lead	4kg	2377	2377
	7kg	1356	1356
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1032
<b>MP</b>	1034
<b>MR</b>	908

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	339.3
<b>MP</b>	339.3
<b>MR</b>	416.2

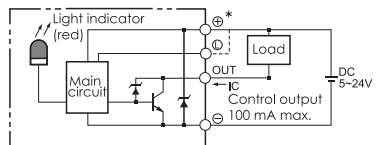
**2540 km of travel** (Unit : N.m)

<b>MY</b>	89.3
<b>MP</b>	89.3
<b>MR</b>	109.5

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

### Motor Hidden In / Motor Exposed

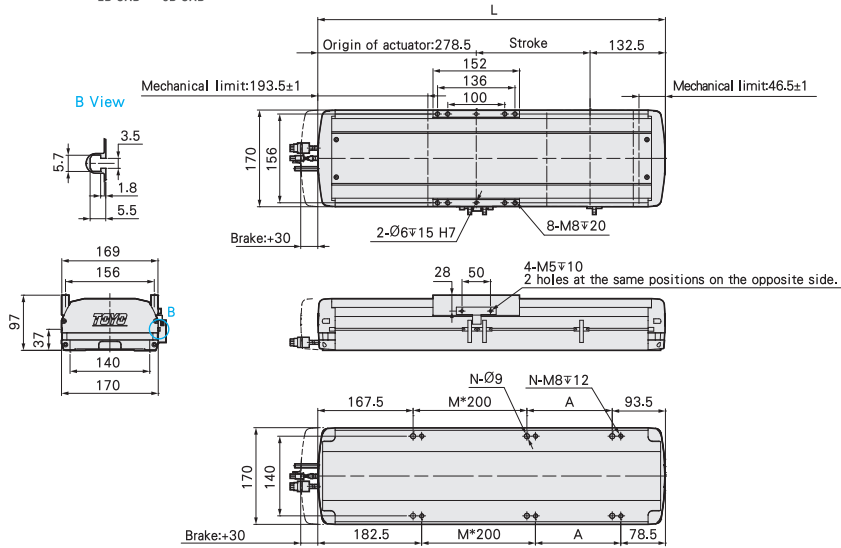
M

Motor Hidden In



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Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	461	511	561	611	661	711	761	811	861	911	961	1011	1061	1111	1161	1211	1261	1311	1361	1411	1461	1511	1561	1611	1661
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	10.11	10.89	11.67	12.45	13.22	14	14.78	15.55	16.33	17.11	17.88	18.66	19.44	20.22	20.99	21.77	22.55	23.33	24.1	24.88	25.66	26.44	27.21	27.99	28.77

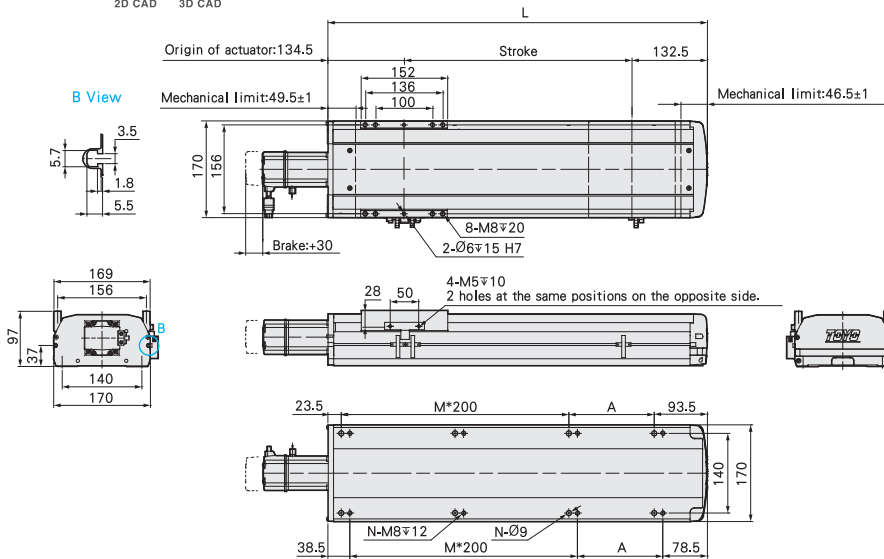
BC

Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	317	367	417	467	517	567	617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317	1367	1417	1467	1517
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.61	10.2	10.79	11.57	12.34	13.11	13.88	14.65	15.42	16.19	16.96	17.73	18.5	19.28	20.05	20.82	21.59	22.36	23.13	23.9	24.67	25.44	26.21	26.98	27.75

**Motor Left Side /  
Motor Right Side**

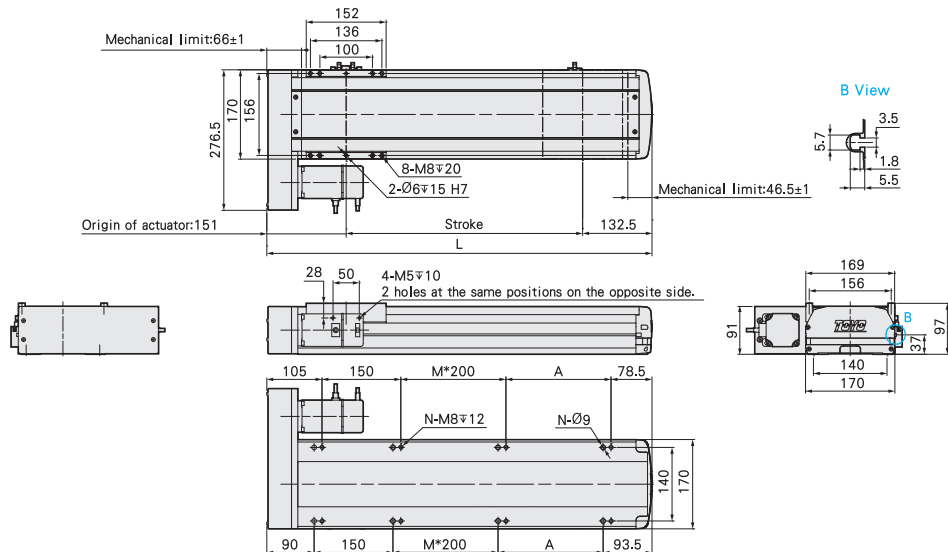
**BL**

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

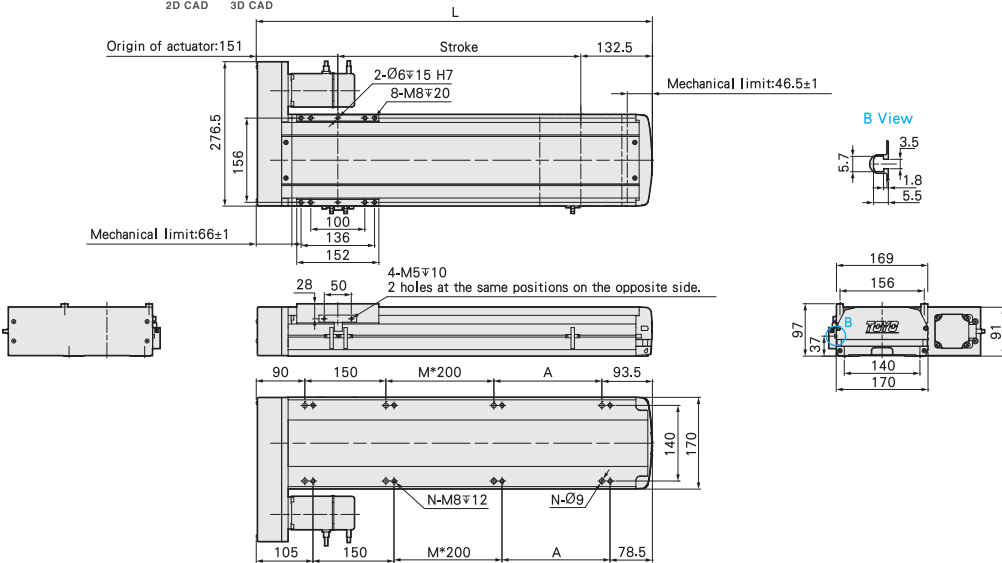
**BR**

Motor Right Side



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Unit : mm

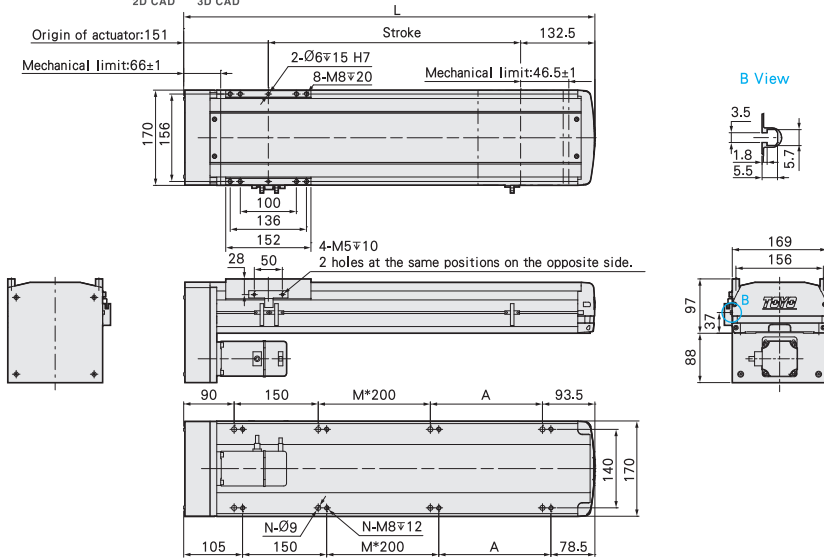


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

## Motor Bottom Side

Unit: mm

BM Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

ETH14

**ETH17**

ETH22

ETH17M

ETH22M

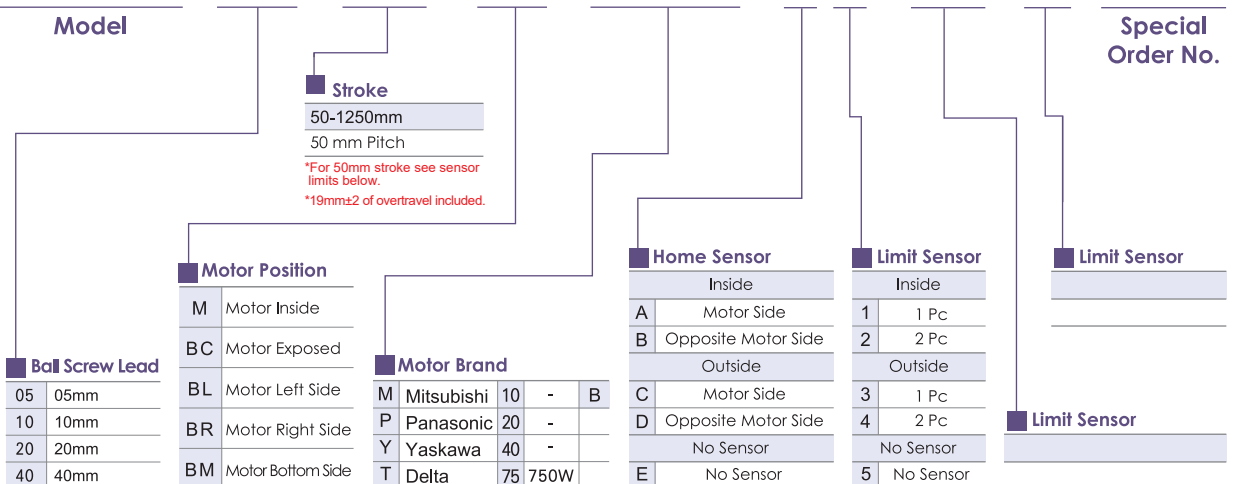


The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>1250mm</b>	Maximum Speed <b>2000mm/s</b>	Motor Output <b>750W</b>	Ball Screw <b>Ø20mm</b>	Linear Guide <b>20X15-2pc</b>
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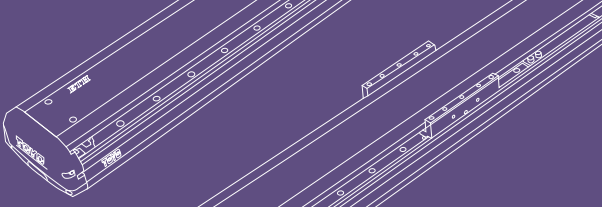
### Ordering Method

## ETH17 - L5 - 50 - BC - M75B - C 4 - NR - P - 0001



\*There is no description for models that do not include brakes.





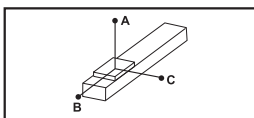
**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)	5	10	20	40		
	Maximum Speed (mm/s)	250	500	1000	2000		
	Max payload	Horizontal (kg)	120	120	83	43	
		Vertical (kg)	50	40	25	12	
	Rated Thrust (N)	2563	1281	640	320		
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	6320	5618	5056	3792
			2540 km of travel	1706	1517	1365	1024
		Static Horizontal (kg)	13228				
	Repeatability (mm)	±0.01					
	Allowable Input Torque (rpm)	3000					
	Start Torque (N.cm)	14					
	Lost Motion (mm)	0.1					
	Allowable Input Torque (N.m)	4.5					
	Maximum Acceleration (in/sec)	10					
Friction Coefficient	<0.01						
Stroke Pitch (mm)	50-1250mm / 50mm Pitch						

<b>Parts Specs</b>	Ball Screw Lead (mm)	5	10	20	40	
	Ball Screw	Basic dynamic load rating Ca (N)	17795	10295	5414	6406
		Basic static load rating Coa (N)	45617	22964	10877	15667
	Linear Guide	Basic dynamic load rating C (KG)	7584			
		Basic static load rating Co (KG)	13228			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3380			
		Basic static load rating Cr (N)	7600			
	AC Servo Motor Output (W)	750				
	Ball Screw Ø (mm)	C7 φ 20				
	High Rigidity Linear Guide (mm)	W20XH15				
	Coupling (mm)	12X19				
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

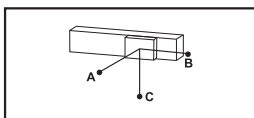
\*When the stroke is over 850mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



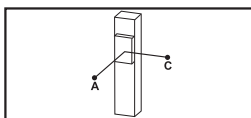
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	70kg	3235	349	408
	90kg	2482	263	306
	120kg	1861	187	218
10 Lead	65kg	1911	338	373
	85kg	1445	248	276
	120kg	1000	164	182
20 Lead	35kg	1666	547	538
	55kg	1030	331	328
	83kg	654	206	204
40 Lead	15kg	1126	740	577
	22kg	755	491	384
	43kg	366	231	183



(Unit : mm)

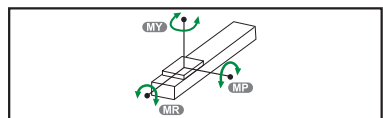
Wall Installation	A	B	C	
5 Lead	75kg	377	322	2988
	95kg	288	246	2333
	120kg	218	187	1850
10 Lead	60kg	408	368	2092
	80kg	296	266	1554
	120kg	182	164	1002
20 Lead	30kg	633	644	1961
	50kg	365	369	1143
	83kg	204	206	656
40 Lead	12kg	729	936	1417
	22kg	384	491	755
	43kg	183	231	366



(Unit : mm)

Vertical Installation	A	C	
5 Lead	20kg	1368	1368
	30kg	911	911
	50kg	546	546
10 Lead	15kg	1618	1618
	25kg	970	970
	40kg	607	607
20 Lead	10kg	1922	1922
	14kg	1377	1377
	25kg	769	769
40 Lead	7kg	1356	1356
	12kg	790	790
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1032
<b>MP</b>	1034
<b>MR</b>	908

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	339.3
<b>MP</b>	339.3
<b>MR</b>	416.2

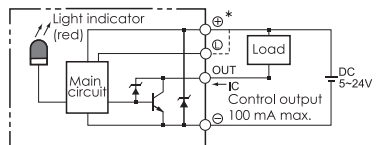
**2540 km of travel** (Unit : N.m)

<b>MY</b>	89.3
<b>MP</b>	89.3
<b>MR</b>	109.5

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MCDHT3520
		With Brake (Vertical Type)	750	220	MHMD082G1V	MCDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

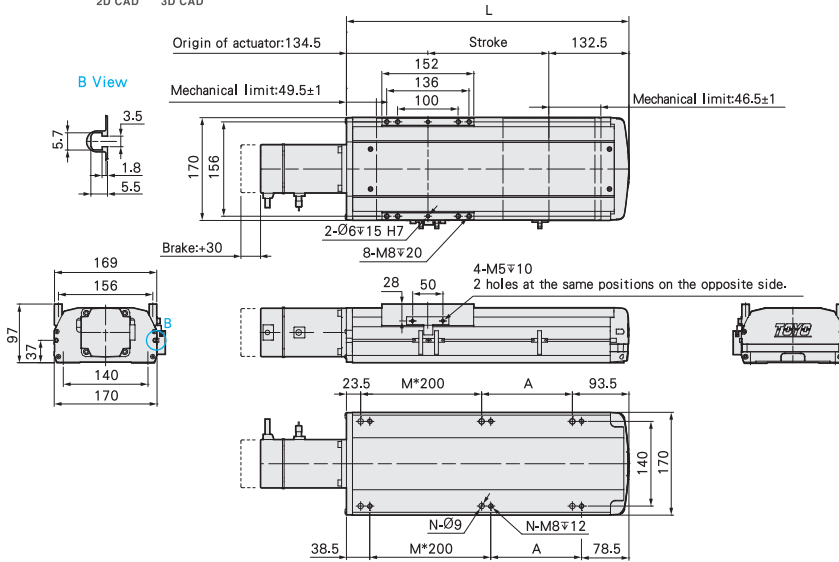
### Motor Exposed / Motor Bottom Side

#### BC Motor Exposed



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Unit: mm



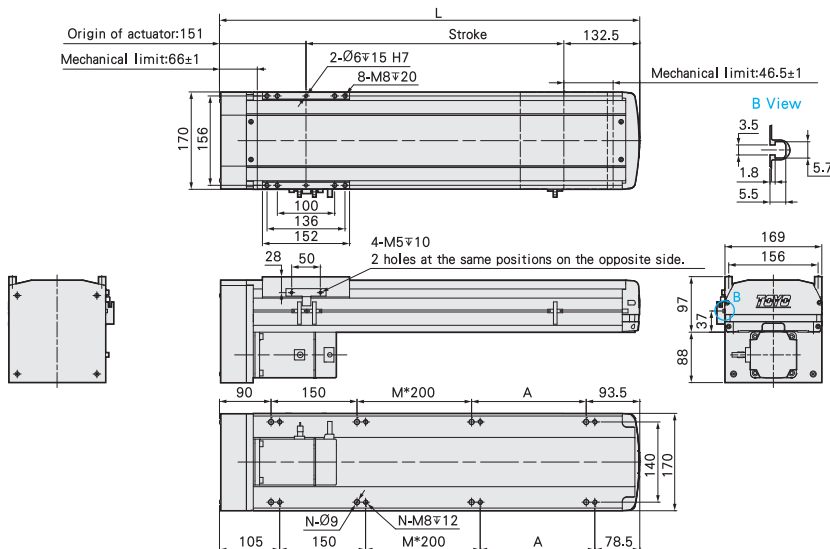
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	317	367	417	467	517	567	617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317	1367	1417	1467	1517
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.61	10.02	10.79	11.57	12.34	13.11	13.88	14.65	15.42	16.19	16.96	17.73	18.5	19.28	20.05	20.82	21.59	22.36	23.13	23.9	24.67	25.44	26.21	26.98	27.75

#### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

- Structure
- Built-in Guideway Ball Screw Type GTH / GTY
- Belt Screw Type ETH
- Belt Type ETB / M
- Clean Room Ball Screw Type ECH
- Clean Room Belt Type ECB
- Reference

## Motor Left Side / Motor Right Side

BL

### Motor Left Side

2D CAD

3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

Origin of actuator:151      Stroke      132.5

Mechanical limit:66±1      Mechanical limit:46.5±1

8-M8 $\nabla$ 20  
2- $\varnothing$ 6 $\nabla$ 15 H7

4-M5 $\nabla$ 10  
2 holes at the same positions on the opposite side.

276.5      170      156

152      136      100

28      50

105      150      M\*200      A      78.5

N-M8 $\nabla$ 12      N- $\varnothing$ 9

90      150      M\*200      A      93.5

140      170

B View

3.5  
5.7      1.8      5.5

169      156  
16      37      97  
140      170

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

BR

### Motor Right Side

2D CAD

3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

Origin of actuator:151      Stroke      132.5

Mechanical limit:66±1      Mechanical limit:46.5±1

2- $\varnothing$ 6 $\nabla$ 15 H7  
8-M8 $\nabla$ 20

4-M5 $\nabla$ 10  
2 holes at the same positions on the opposite side.

276.5      170      156

100      136      152

28      50

105      150      M\*200      A      78.5

N-M8 $\nabla$ 12      N- $\varnothing$ 9

90      150      M\*200      A      93.5

140      170

B View

3.5  
5.7      1.8      5.5

169      156  
97      37      97  
140      170

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	333.5	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5	1533.5
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	9.53	10.3	11.07	11.84	12.61	13.38	14.15	14.92	15.69	16.47	17.24	18.01	18.78	19.55	20.32	21.09	21.86	22.63	23.4	24.18	24.95	25.72	26.49	27.26	28.03

- 1 axis
- ETH
- ETH13
- ETH14
- ETH17
- ETH22
- ETH17M
- ETH22M

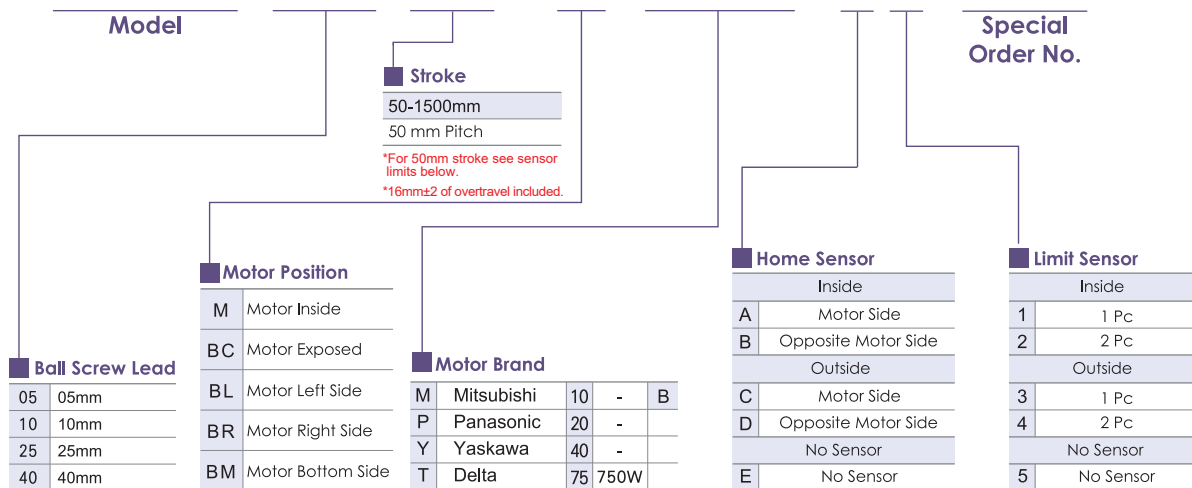


The picture above is not to scale. See the drawing for actual dimensions.

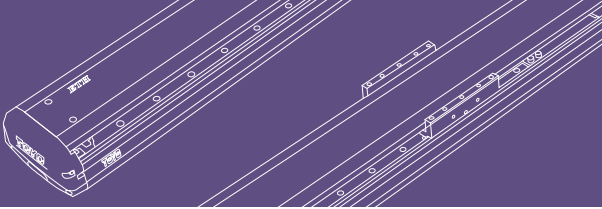
Maximum Stroke <b>1500mm</b>	Maximum Speed <b>2000mm/s</b>	Motor Output <b>750W</b>	Ball Screw <b>Ø25mm</b>	Linear Guide <b>23X18-2pc</b>
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### Ordering Method

## ETH22 - L 10 - 50 - M - M75B - C 4 - 0001



\*There is no description for models that do not include brakes.



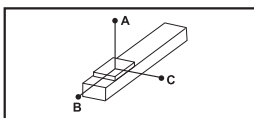
**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	25	40	
	Maximum Speed (mm/s)		250	500	1250	2000	
	Max payload	Horizontal (kg)	150	150	105	43	
		Vertical (kg)	55	45	20	12	
	Rated Thrust (N)		2563	1281	640	320	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	8603	7647	6073	5162
			2540 km of travel	2323	2065	1640	1394
		Static Horizontal (kg)	18012				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		17				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		8.4				
	Maximum Acceleration (in/sec)		10				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		50-1500mm / 50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		5	10	25	40
	Ball Screw	Basic dynamic load rating Ca (N)	11116	16069	5948	6406
		Basic static load rating Coa (N)	27338	45450	13497	15667
	Linear Guide	Basic dynamic load rating C (KG)	10324			
		Basic static load rating Co (KG)	18012			
	Fixed Bearing	Basic dynamic load rating Cor (N)	8240			
		Basic static load rating Cr (N)	17900			
	AC Servo Motor Output (W)		750			
	Ball Screw Ø (mm)		C7 φ 25		C7φ20	
	High Rigidity Linear Guide (mm)		W23XH18			
	Coupling (mm)		10X19		12X19	
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

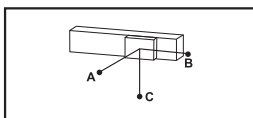
\*When the stroke is over 900mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



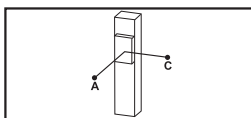
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	100kg	5000	633 557
	125kg	3880	491 431
	150kg	3357	396 347
10 Lead	100kg	3220	563 474
	125kg	2554	434 367
	150kg	2113	349 295
25 Lead	65kg	1522	614 458
	85kg	1136	451 336
	105kg	893	350 262
40 Lead	18kg	2445	1616 1052
	30kg	1436	938 613
	43kg	978	630 412



(Unit : mm)

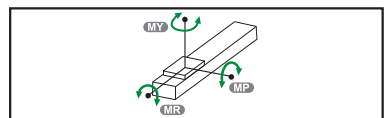
Wall Installation	A	B	C
5 Lead	110kg	500	569 4500
	130kg	412	469 3711
	150kg	347	396 3357
10 Lead	110kg	427	503 2900
	130kg	351	414 2444
	150kg	295	349 2113
25 Lead	70kg	420	564 1404
	90kg	315	420 1066
	105kg	262	350 893
40 Lead	15kg	1272	1955 2948
	24kg	778	1190 1813
	43kg	412	630 978



(Unit : mm)

Vertical Installation	A	C
5 Lead	30kg	2355 2355
	40kg	1768 1768
	55kg	1288 1288
10 Lead	25kg	2505 2505
	35kg	1795 1795
	45kg	1396 1396
25 Lead	15kg	2711 2711
	20kg	2033 2033
	-	- -
40 Lead	7kg	3511 3511
	12kg	2055 2055
	-	- -

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	2052
<b>MP</b>	2052
<b>MR</b>	1810

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	878.7
<b>MP</b>	878.7
<b>MR</b>	799.3

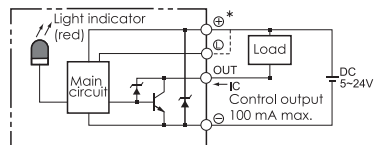
**2540 km of travel** (Unit : N.m)

<b>MY</b>	231.2
<b>MP</b>	231.2
<b>MR</b>	210.4

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MCDHT3520
		With Brake (Vertical Type)	750	220	MHMD082G1V	MCDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

**Sensor Layout**



### Motor Hidden In / Motor Exposed

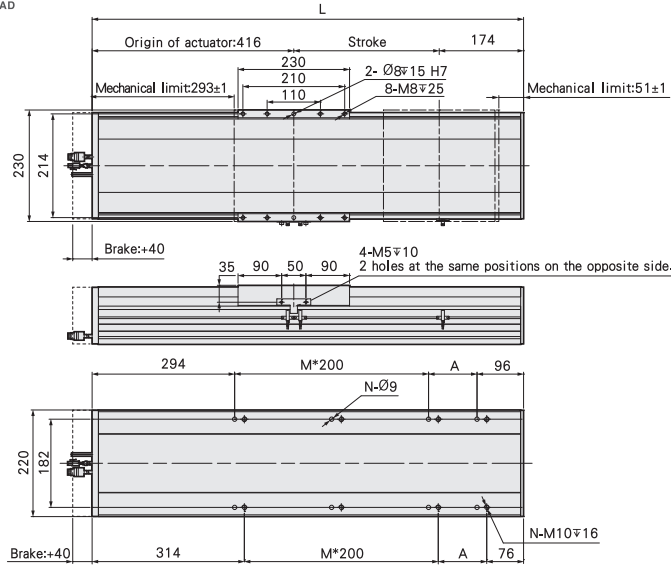
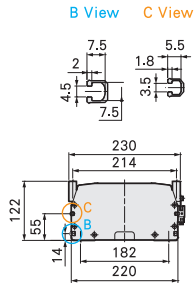
M

Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690	1740	1790	1840	1890	1940	1990	2040	2090
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	27.85	29.32	30.79	32.26	33.73	35.2	36.67	38.14	39.61	41.08	42.55	44.02	45.49	46.96	48.43	49.9	51.37	52.84	54.31	55.78	57.25	58.72	60.19	61.66	63.13	64.6	66.07	67.54	69.01	70.48

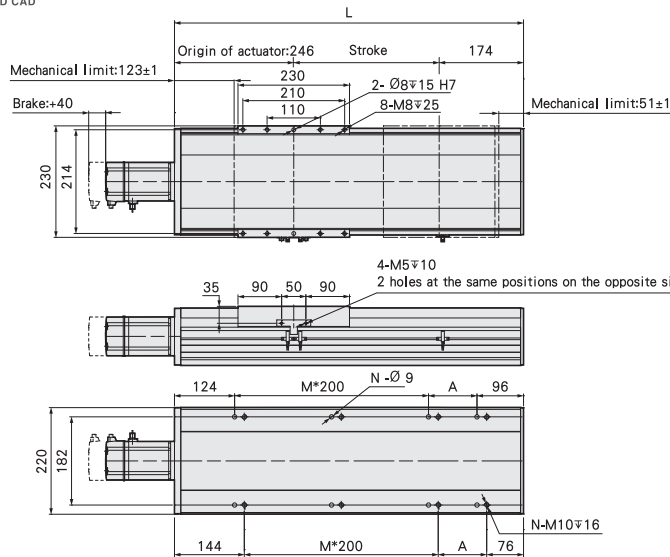
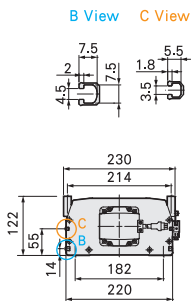
BC

Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	25.4	26.86	28.32	29.78	31.24	32.7	34.16	35.62	37.08	38.54	40	41.46	42.92	44.38	45.84	47.3	48.76	50.22	51.68	53.14	54.6	56.06	57.52	58.98	60.44	61.9	63.36	64.82	66.28	67.74

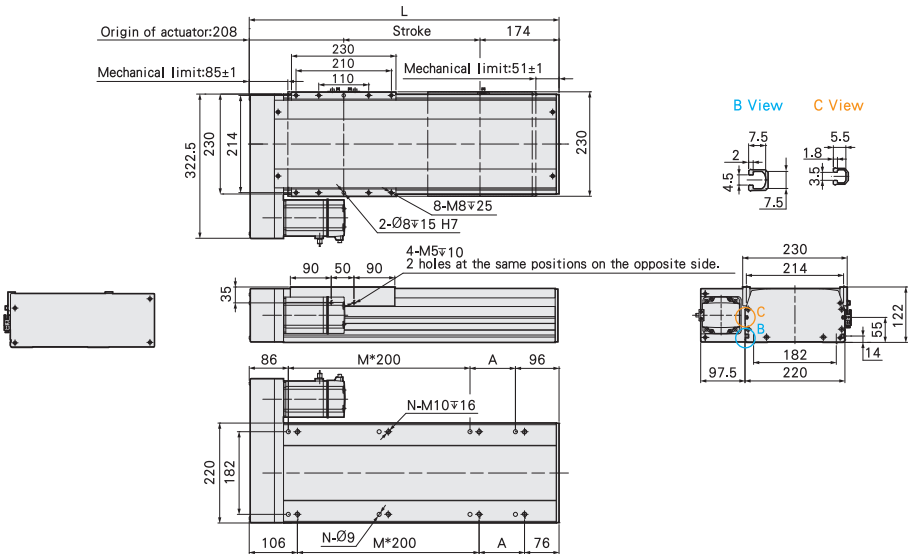
**Motor Left Side / Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



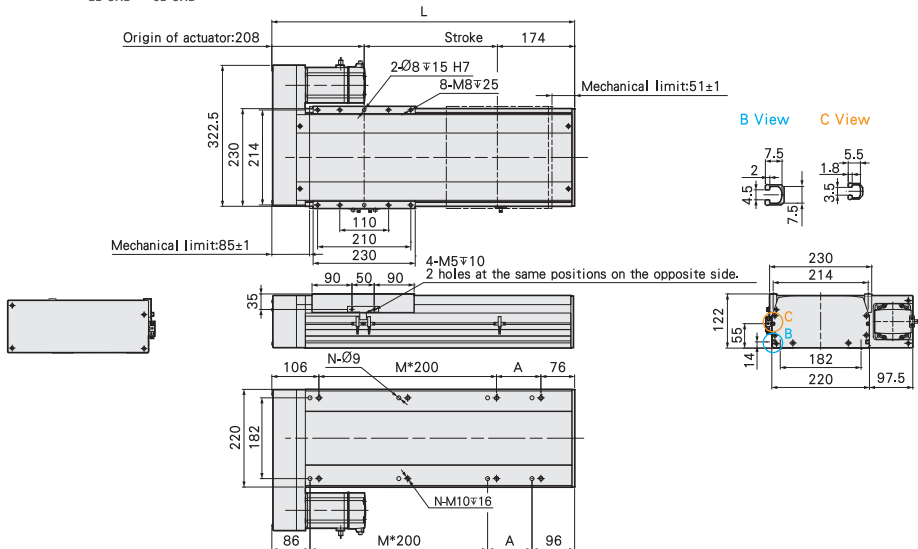
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582	1632	1682	1732	1782	1832	1882
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	24.2	25.66	27.12	28.58	30.04	31.5	32.96	34.42	35.88	37.34	38.8	40.26	41.72	43.18	44.64	46.1	47.56	49.02	50.48	51.94	53.4	54.86	56.32	57.78	59.24	60.7	62.16	63.62	65.08	66.54

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

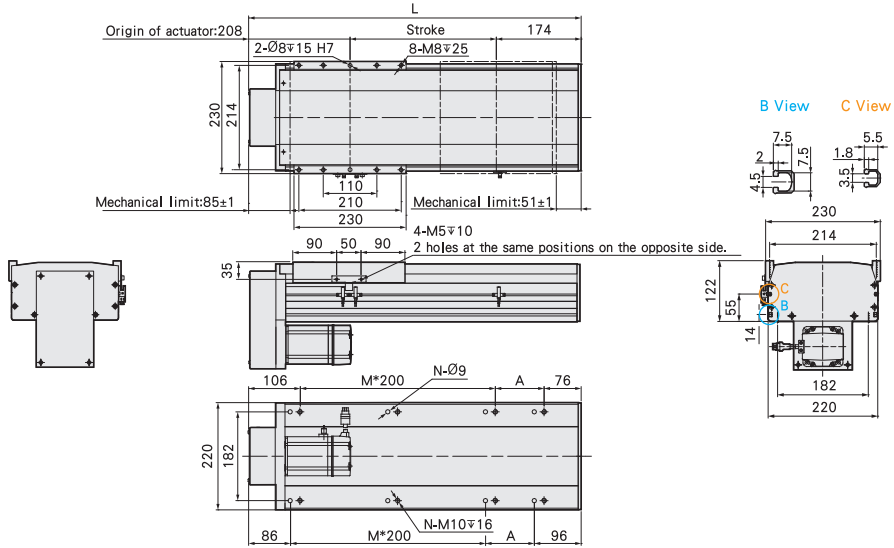


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582	1632	1682	1732	1782	1832	1882
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	24.2	25.66	27.12	28.58	30.04	31.5	32.96	34.42	35.88	37.34	38.8	40.26	41.72	43.18	44.64	46.1	47.56	49.02	50.48	51.94	53.4	54.86	56.32	57.78	59.24	60.7	62.16	63.62	65.08	66.54

## Motor Bottom Side

Unit: mm

BM Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
L	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582	1632	1682	1732	1782	1832	1882	
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	6	7	7	7	7	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	16	18	18	18	18	20	20
KG	24.2	25.66	27.12	28.58	30.04	31.5	32.96	34.42	35.88	37.34	38.8	40.26	41.72	43.18	44.64	46.1	47.56	49.02	50.48	51.94	53.4	54.86	56.32	57.78	59.24	60.7	62.16	63.62	65.08	66.54	



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

ETH14

ETH17

**ETH22**

ETH17M

ETH22M

# ETH17M 1-axis

▶ Long Stroke ▶ Ball Screw Drive



\*Customizable for clean room type.

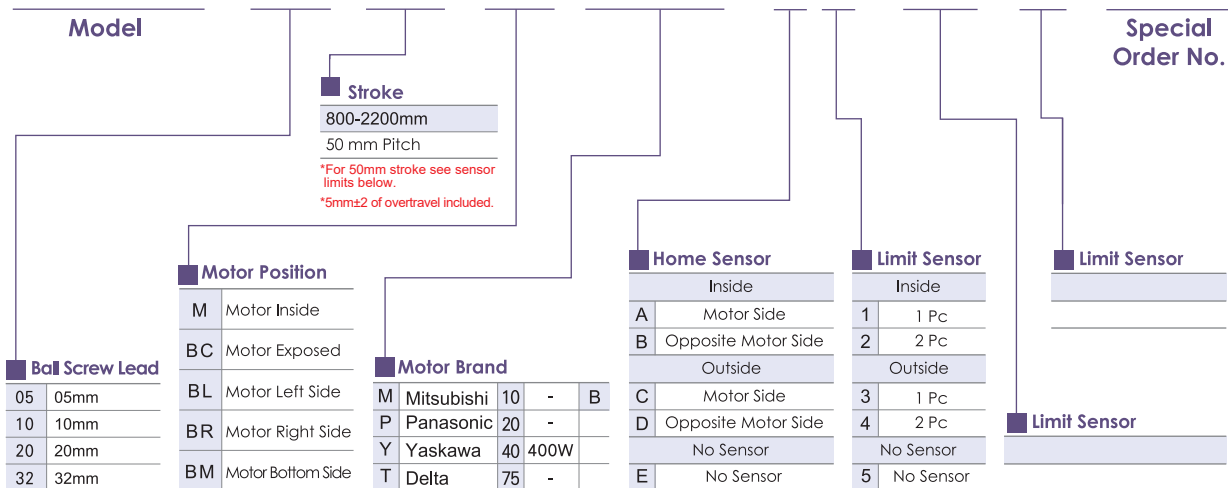
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>2200mm</b>	Maximum Speed <b>1280mm/s</b>	Motor Output <b>400W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
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\*Maximum motor speed: 2400rpm.

## Ordering Method

# ETH17M - L5 - 800 - M - M40B - C 4 - NR - P - 0001



\*There is no description for models that do not include brakes.



**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		200	400	800	1280	
	Max payload	Horizontal (kg)	110	90	40	30	
		Vertical (kg)	33	22	10	8	
	Rated Thrust (N)		1388	694	347	218	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		2400				
	Start Torque (N.cm)		14				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		4.5				
	Maximum Acceleration (in/sec)		10				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		800-2200mm / 50mm Pitch					

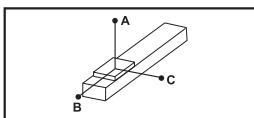
Parts Specs	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	4824			
		Basic static load rating Co (KG)	8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3040			
		Basic static load rating Cr (N)	7100			
	AC Servo Motor Output (W)		400			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X14			
	Home Sensor	Outside	EE-SX672(NPN)			

\*When the stroke is over 1600mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

\*Acceleration and deceleration value is set at 0.2 seconds.

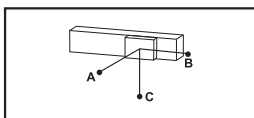
\*Maximum motor speed: 2400rpm.

**Allowable Overhang**



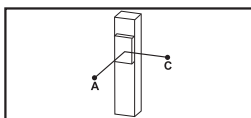
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	70kg	2092	162 208
	90kg	1555	117 149
	110kg	1210	88 113
10 Lead	60kg	1107	172 208
	75kg	848	130 156
	90kg	680	101 122
20 Lead	20kg	1498	491 520
	30kg	973	313 334
	40kg	712	225 238
32 Lead	10kg	1311	692 625
	20kg	633	326 295
	30kg	405	203 187



(Unit : mm)

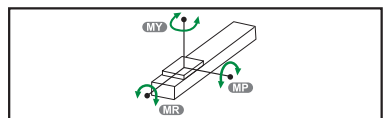
Wall Installation	A	B	C
5 Lead	75kg	190	148 1911
	95kg	140	108 1450
	110kg	113	88 1210
10 Lead	65kg	188	156 1008
	80kg	144	119 788
	90kg	122	101 680
20 Lead	25kg	408	382 1180
	35kg	280	262 825
	40kg	238	225 712
32 Lead	15kg	408	449 860
	25kg	230	252 495
	30kg	187	203 405



(Unit : mm)

Vertical Installation	A	C
5 Lead	15kg	940 940
	22kg	640 640
	33kg	427 427
10 Lead	10kg	1248 1248
	14kg	894 894
	22kg	569 569
20 Lead	7kg	1417 1417
	10kg	993 993
	-	- -
32 Lead	5kg	1255 1255
	8kg	785 785
	-	- -

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	605
<b>MP</b>	448
<b>MR</b>	448

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
<b>MY</b>	175.1
<b>MP</b>	175.1
<b>MR</b>	236.4

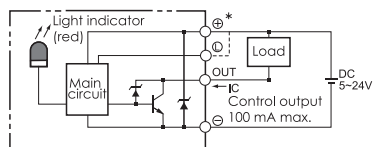
  

2540 km of travel (Unit : N.m)	
<b>MY</b>	46.1
<b>MP</b>	46.1
<b>MR</b>	62.2

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

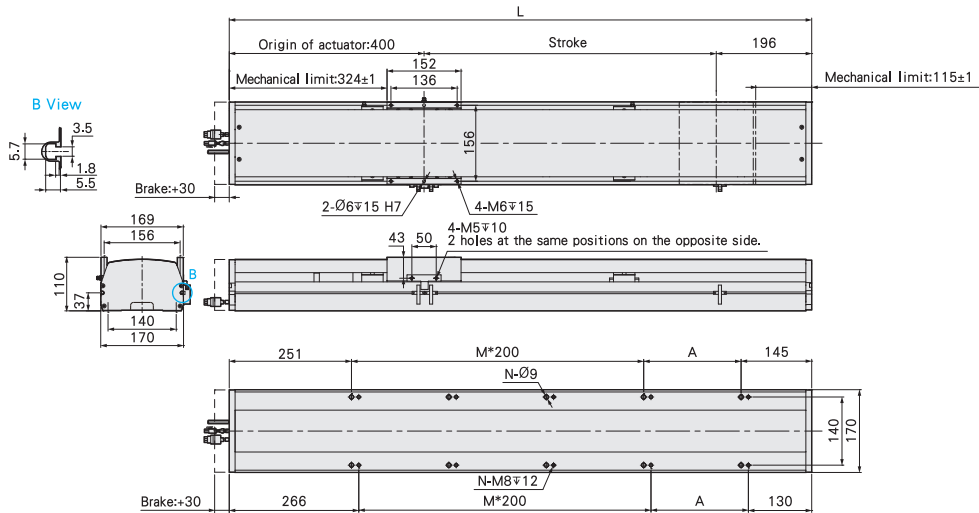
## Motor Hidden In / Motor Exposed

### M Motor Inside



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



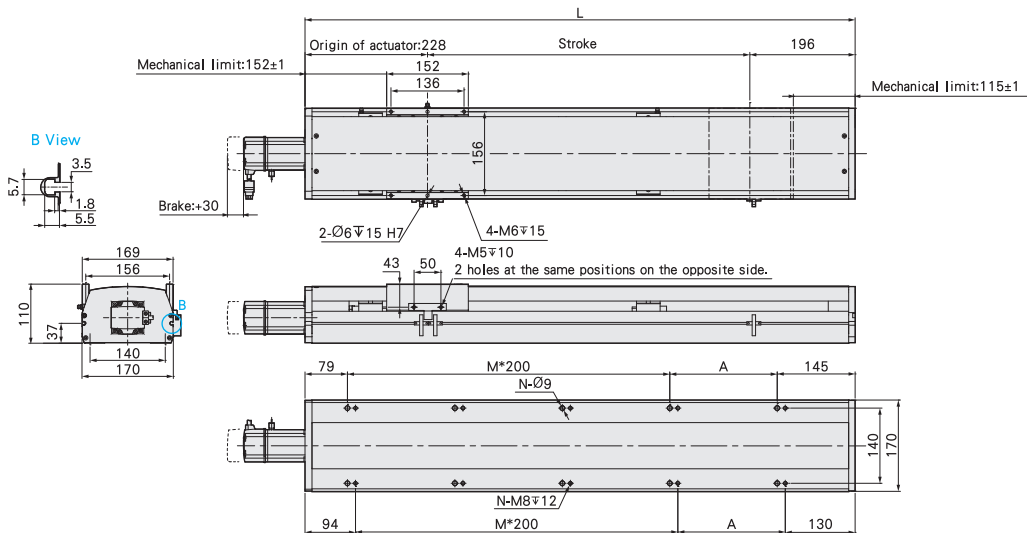
Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1396	1446	1496	1546	1596	1646	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	26
KG	29.88	30.56	31.24	31.92	32.6	33.28	33.96	34.64	35.32	36	36.68	37.36	38.04	38.72	39.4	40.08	40.76	41.44	42.12	42.8	43.48	44.16	44.84	45.52	46.2	46.88	47.56	48.24	48.92	

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1224	1274	1324	1374	1424	1474	1524	1574	1624	1674	1724	1774	1824	1874	1924	1974	2024	2072	2142	2174	2224	2274	2324	2374	2424	2474	2524	2574	2624	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	26
KG	28.99	29.67	30.35	31.03	31.71	32.39	33.07	33.75	34.43	35.11	35.79	36.47	37.15	37.83	38.51	39.19	39.87	40.55	41.23	41.91	42.59	43.27	43.95	44.63	45.31	45.99	46.67	47.35	48.03	

**Motor Left Side / Motor Right Side**

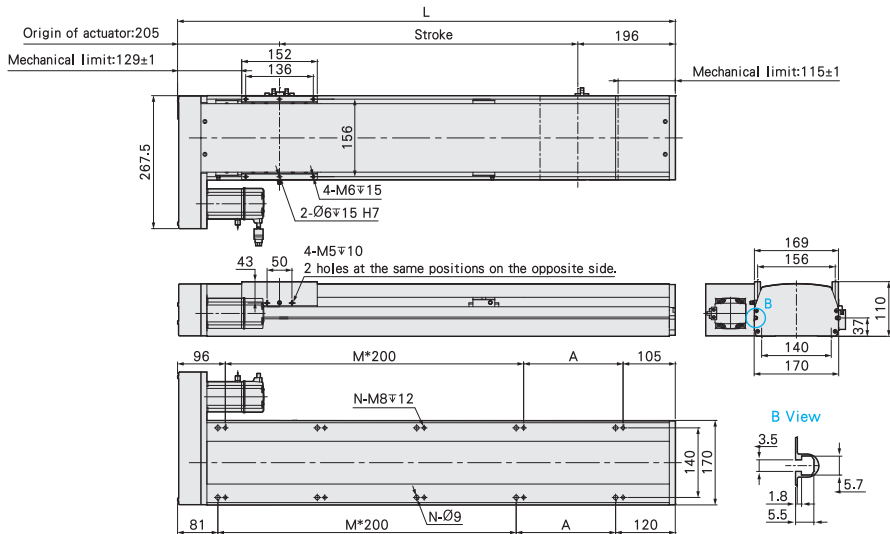
**BL**

**Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	11	11	11	11	
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	22	24	24	24	24	24	26	26	26
KG	29.86	30.54	31.22	31.9	32.58	33.26	33.94	34.62	35.3	35.98	36.66	37.34	38.02	38.7	39.38	40.06	40.74	41.42	42.1	42.78	43.46	44.14	44.82	45.5	46.18	46.86	47.54	48.22	48.9	

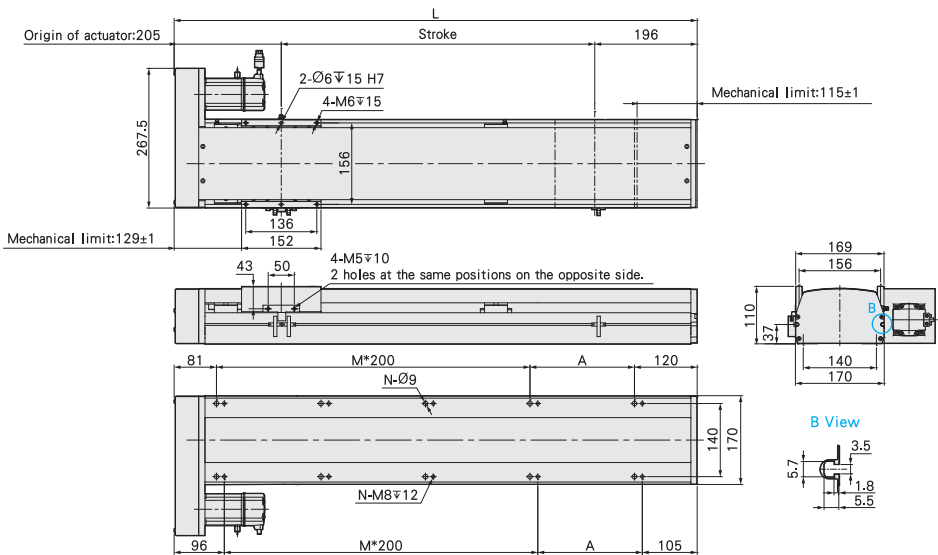
**BR**

**Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	11	11	11	11	
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	22	24	24	24	24	24	26	26	26
KG	29.86	30.54	31.22	31.9	32.58	33.26	33.94	34.62	35.3	35.98	36.66	37.34	38.02	38.7	39.38	40.06	40.74	41.42	42.1	42.78	43.46	44.14	44.82	45.5	46.18	46.86	47.54	48.22	48.9	

## Motor Bottom Side

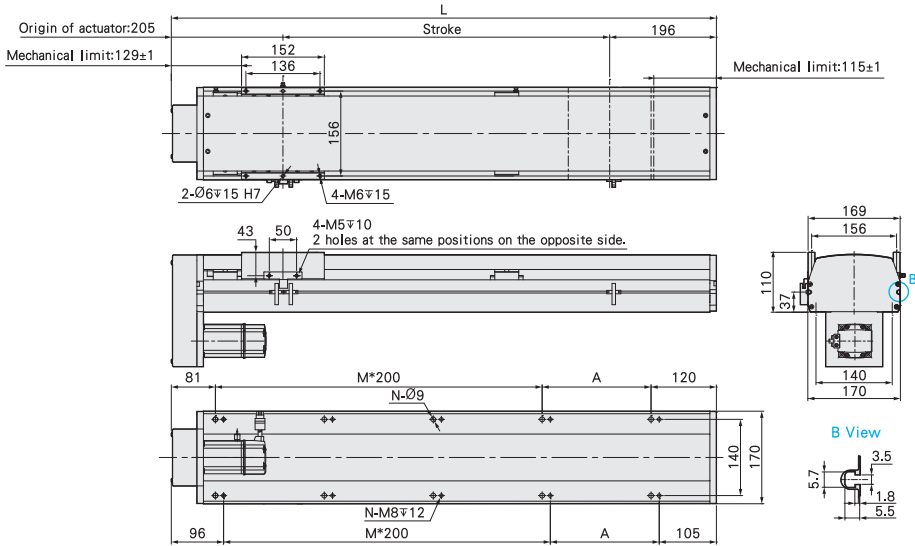


Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	29.86	30.54	31.22	31.9	32.58	33.26	33.94	34.62	35.3	35.98	36.66	37.34	38.02	38.7	39.38	40.06	40.74	41.42	42.1	42.78	43.46	44.14	44.82	45.5	46.18	46.86	47.54	48.22	48.9

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

**ETH17M**

ETH22M

# ETH17M 1-axis

▶ Long Stroke ▶ Ball Screw Drive



\*Customizable for clean room type.

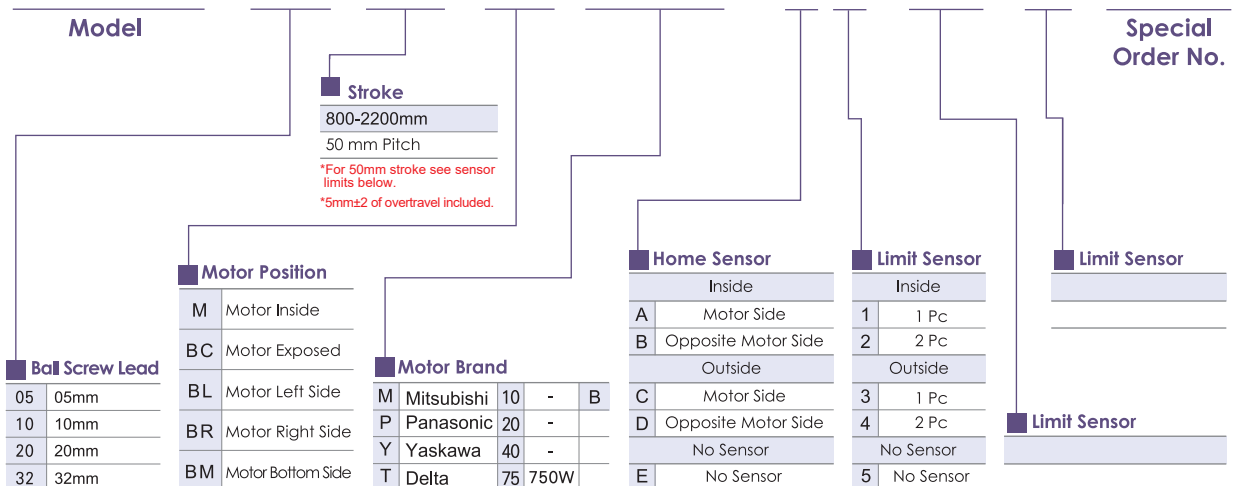
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>2200mm</b>	Maximum Speed <b>1280mm/s</b>	Motor Output <b>750W</b>	Ball Screw $\varnothing$ <b>16mm</b>	Linear Guide <b>15X12.5-2pc</b>
------------------------------	-------------------------------	--------------------------	--------------------------------------	---------------------------------

\*Maximum motor speed: 2400rpm.

## Ordering Method

# ETH17M - L5 - 800 - BC - M75B - C4 - NR - P - 0001



\*There is no description for models that do not include brakes.





**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		200	400	800	1280	
	Max payload	Horizontal (kg)	120	95	50	35	
		Vertical (kg)	40	25	15	12	
	Rated Thrust (N)		2563	1281	640	400	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		2400				
	Start Torque (N.cm)		14				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		4.5				
	Maximum Acceleration (in/sec)		10				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		800-2200mm / 50mm Pitch					

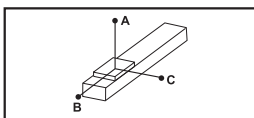
Parts Specs	Ball Screw Lead (mm)		5	10	20	32
	Ball Screw	Basic dynamic load rating Ca (N)	10526	5817	5435	4836
		Basic static load rating Coa (N)	23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)	4824			
		Basic static load rating Co (KG)	8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3040			
		Basic static load rating Cr (N)	7100			
	AC Servo Motor Output (W)		750			
	Ball Screw Ø (mm)		C7 φ 16			
	High Rigidity Linear Guide (mm)		W15XH12.5			
	Coupling (mm)		10X19			
	Home Sensor	Outside	EE-SX672(NPN)			

\*When the stroke is over 1600mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

\*Acceleration and deceleration value is set at 0.2 seconds.

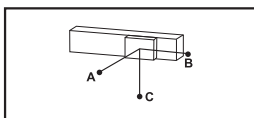
\*Maximum motor speed: 2400rpm.

**Allowable Overhang**



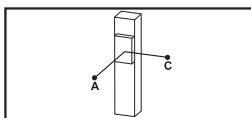
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	70kg	2092	162 208
	90kg	1555	117 149
	120kg	1080	78 100
10 Lead	60kg	1107	172 208
	75kg	848	130 156
	95kg	637	94 114
20 Lead	20kg	1498	491 520
	30kg	973	313 334
	50kg	550	172 182
32 Lead	10kg	1311	692 625
	20kg	633	326 295
	35kg	339	169 156



(Unit : mm)

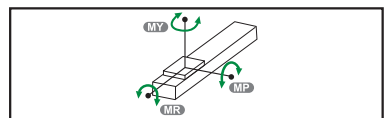
Wall Installation	A	B	C
5 Lead	75kg	190	148 1911
	95kg	140	108 1450
	120kg	100	78 1080
10 Lead	65kg	188	156 1008
	80kg	144	119 788
	95kg	114	94 637
20 Lead	25kg	408	382 1180
	35kg	280	262 825
	50kg	182	172 550
32 Lead	15kg	408	449 860
	25kg	230	252 495
	35kg	156	169 339



(Unit : mm)

Vertical Installation	A	C
5 Lead	15kg	940 940
	22kg	640 640
	40kg	350 350
10 Lead	10kg	1248 1248
	14kg	894 894
	25kg	499 499
20 Lead	7kg	1417 1417
	10kg	993 993
	15kg	660 660
32 Lead	5kg	1255 1255
	8kg	785 785
	12kg	525 525

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	552
<b>MP</b>	552
<b>MR</b>	638

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	175.1
<b>MP</b>	175.1
<b>MR</b>	236.4

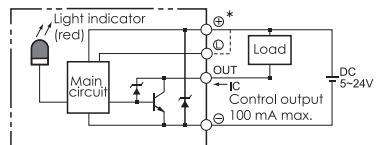
**2540 km of travel** (Unit : N.m)

<b>MY</b>	46.1
<b>MP</b>	46.1
<b>MR</b>	62.2

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MCDHT3520
		With Brake (Vertical Type)	750	220	MHMD082G1V	MCDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

**Sensor Layout**



1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

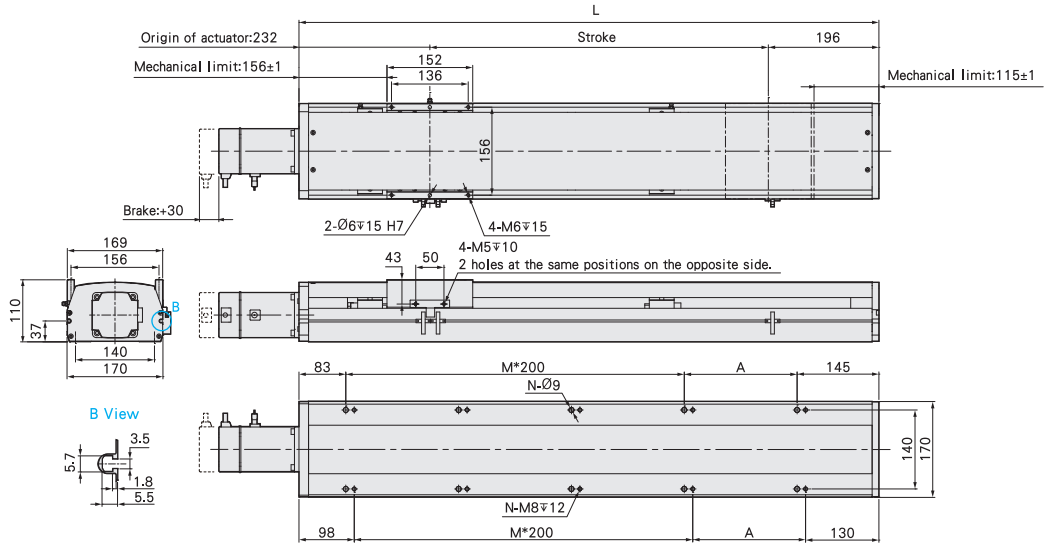
ETH17M

ETH22M

## Motor Exposed / Motor Bottom Side

Unit: mm

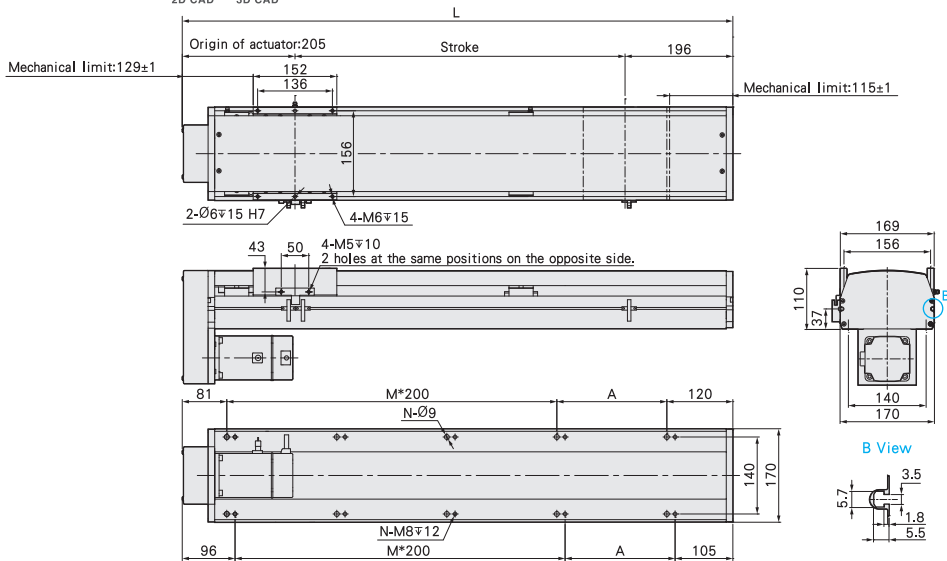
**BC** Motor Exposed   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
L	1228	1278	1328	1378	1428	1478	1528	1578	1628	1678	1728	1778	1828	1878	1928	1978	2028	2078	2128	2178	2228	2278	2328	2378	2428	2478	2528	2578	2628
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	29.74	30.42	31.1	31.78	32.46	33.14	33.82	34.5	35.18	35.86	36.54	37.22	37.9	38.58	39.26	39.94	40.62	41.3	41.98	42.66	43.34	44.02	44.7	45.38	46.06	46.74	47.42	48.1	48.78

**BM** Motor Bottom Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	30.61	31.29	31.97	32.65	33.33	34.01	34.69	35.37	36.05	36.73	37.41	38.09	38.77	39.45	40.13	40.81	41.49	42.17	42.85	43.53	44.21	44.89	45.57	46.25	46.93	47.61	48.29	48.97	49.65

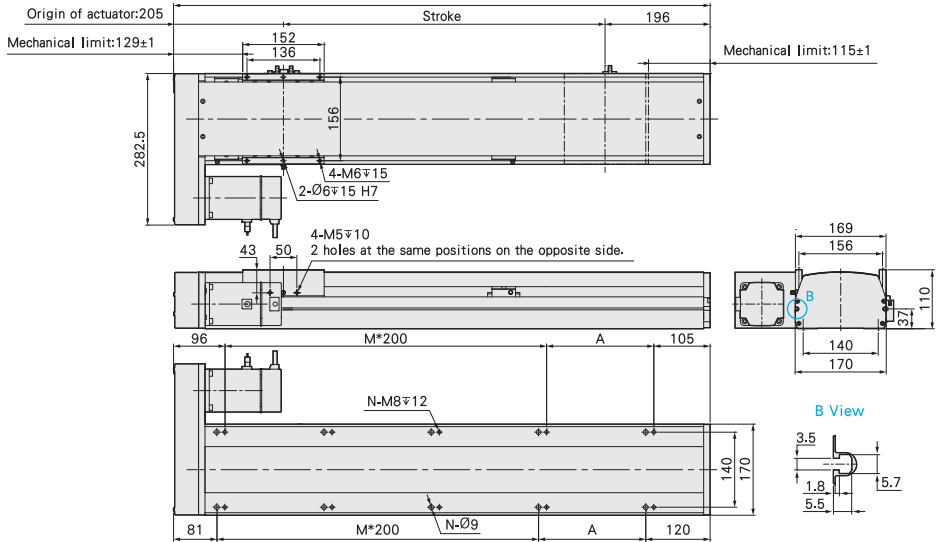
**Motor Left Side /  
Motor Right Side**

**BL Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



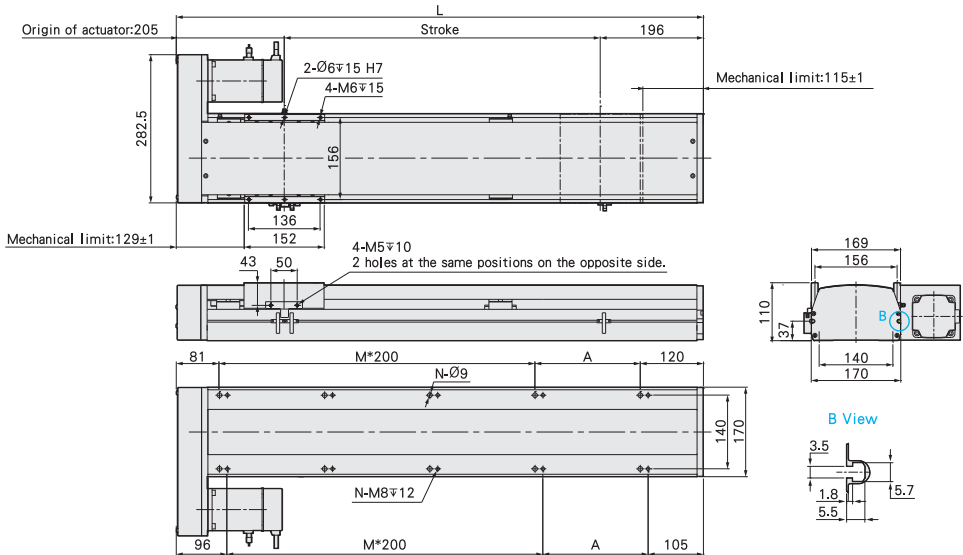
Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	
N	12	14	14	14	14	16	16	16	16	18	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	30.61	31.29	31.97	32.65	33.33	34.01	34.69	35.37	36.05	36.73	37.41	38.09	38.77	39.45	40.13	40.81	41.49	42.17	42.85	43.53	44.21	44.89	45.57	46.25	46.93	47.61	48.29	48.97	49.65	

**BR Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	
L	1201	1251	1301	1351	1401	1451	1501	1551	1601	1651	1701	1751	1801	1851	1901	1951	2001	2051	2101	2151	2201	2251	2301	2351	2401	2451	2501	2551	2601	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	
N	12	14	14	14	14	16	16	16	16	18	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	30.61	31.29	31.97	32.65	33.33	34.01	34.69	35.37	36.05	36.73	37.41	38.09	38.77	39.45	40.13	40.81	41.49	42.17	42.85	43.53	44.21	44.89	45.57	46.25	46.93	47.61	48.29	48.97	49.65	

# ETH22M

1-axis

▶ Long Stroke ▶ Ball Screw Drive



\*Customizable for clean room type.

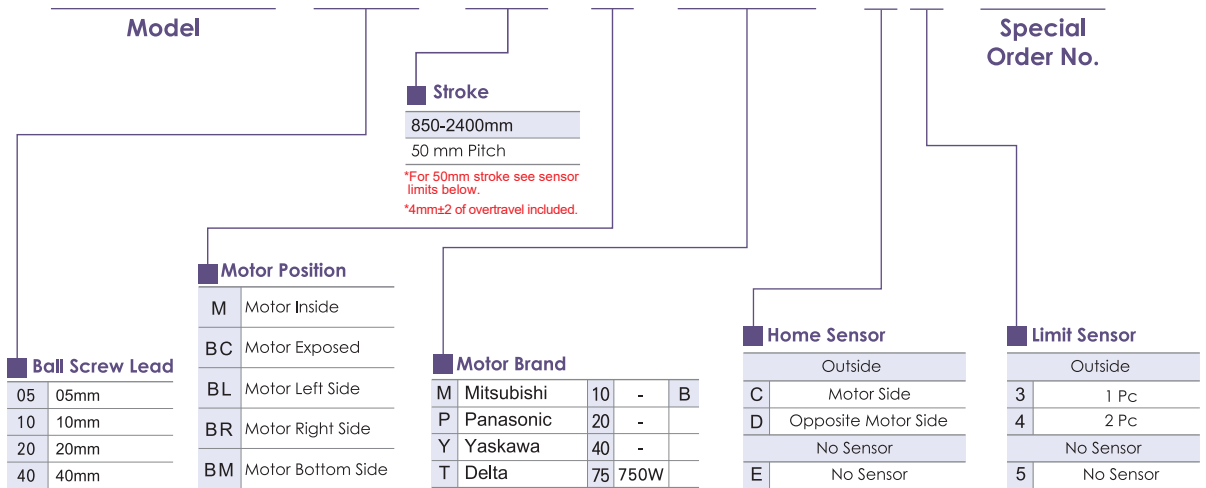
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke	2400mm	Maximum Speed	1600mm/s	Motor Output	750W	Ball Screw	Ø20mm	Linear Guide	20X15-2pc
----------------	--------	---------------	----------	--------------	------	------------	-------	--------------	-----------

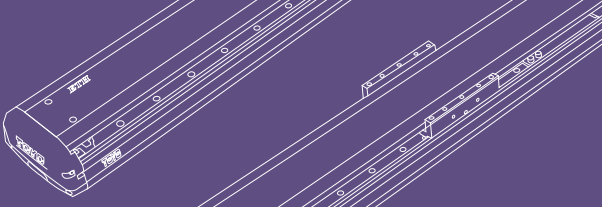
\*Maximum motor speed: 2400rpm.

## Ordering Method

# ETH22M - L 10 - 850 - M - M75B - C 4 - 0001



\*There is no description for models that do not include brakes.



**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)	5	10	20	40		
	Maximum Speed (mm/s)	200	400	800	1600		
	Max payload	Horizontal (kg)	130	130	85	43	
		Vertical (kg)	50	40	25	12	
	Rated Thrust (N)	2563	1281	640	320		
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	6320	5618	5056	3792
			2540 km of travel	1706	1517	1365	1024
		Static Horizontal (kg)	13228				
	Repeatability (mm)	±0.01					
	Allowable Input Torque (rpm)	2400					
	Start Torque (N.cm)	17					
	Lost Motion (mm)	0.1					
	Allowable Input Torque (N.m)	8.4					
	Maximum Acceleration (in/sec)	10					
Friction Coefficient	<0.01						
Stroke Pitch (mm)	850-2400mm / 50mm Pitch						

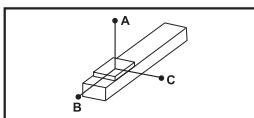
<b>Parts Specs</b>	Ball Screw Lead (mm)	5	10	20	40	
	Ball Screw	Basic dynamic load rating Ca (N)	11116	16069	5948	6406
		Basic static load rating Coa (N)	27338	45450	13497	15667
	Linear Guide	Basic dynamic load rating C (KG)	7584			
		Basic static load rating Co (KG)	13228			
	Fixed Bearing	Basic dynamic load rating Cor (N)	3380			
		Basic static load rating Cr (N)	7600			
	AC Servo Motor Output (W)	750				
	Ball Screw Ø (mm)	C7φ20				
	High Rigidity Linear Guide (mm)	W20XH15				
	Coupling (mm)	12X19				
	Home Sensor	Outside	EE-SX672(NPN)			

\*When the stroke is over 2050mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.

\*Acceleration and deceleration value is set at 0.2 seconds.

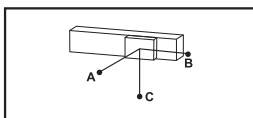
\*Maximum motor speed: 2400rpm.

**Allowable Overhang**



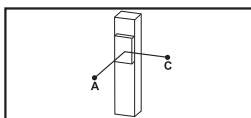
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	80kg	3311	411 403
	100kg	2534	320 308
	130kg	2113	228 221
10 Lead	70kg	2700	430 394
	90kg	2022	320 294
	130kg	1311	198 184
20 Lead	40kg	2044	662 558
	60kg	1316	417 352
	85kg	886	272 231
40 Lead	20kg	1180	766 533
	25kg	927	599 418
	43kg	510	318 224



(Unit : mm)

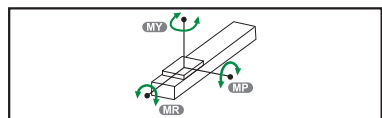
Wall Installation	A	B	C
5 Lead	85kg	370	388 3066
	105kg	288	299 2389
	130kg	221	228 2113
10 Lead	75kg	368	398 2515
	95kg	277	300 1926
	130kg	184	198 1328
20 Lead	45kg	490	582 1805
	65kg	321	381 1204
	85kg	231	272 886
40 Lead	25kg	418	601 930
	35kg	286	408 644
	43kg	224	318 510



(Unit : mm)

Vertical Installation	A	C
5 Lead	30kg	1301 1301
	40kg	977 977
	50kg	781 781
10 Lead	20kg	1735 1735
	30kg	1156 1156
	40kg	867 867
20 Lead	15kg	1835 1835
	20kg	1376 1376
	25kg	1101 1101
40 Lead	7kg	1943 1943
	12kg	1133 1133
	-	- -

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1254
<b>MP</b>	1254
<b>MR</b>	1254

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

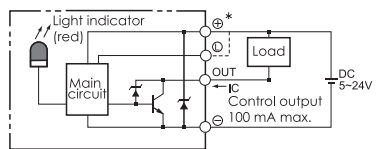
**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
<b>MY</b>	484.9
<b>MP</b>	484.9
<b>MR</b>	484.9
2540 km of travel (Unit : N.m)	
<b>MY</b>	127.6
<b>MP</b>	127.6
<b>MR</b>	127.6

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MCDHT3520
		With Brake (Vertical Type)	750	220	MHMD082G1V	MCDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

**Sensor Layout**



1 axis  
**ETH**

- ETH13
- ETH14
- ETH17
- ETH22
- ETH17M
- ETH22M

# ETH22M 1-axis

▶ Long Stroke ▶ Ball Screw Drive

Motor Hidden In / Motor Exposed

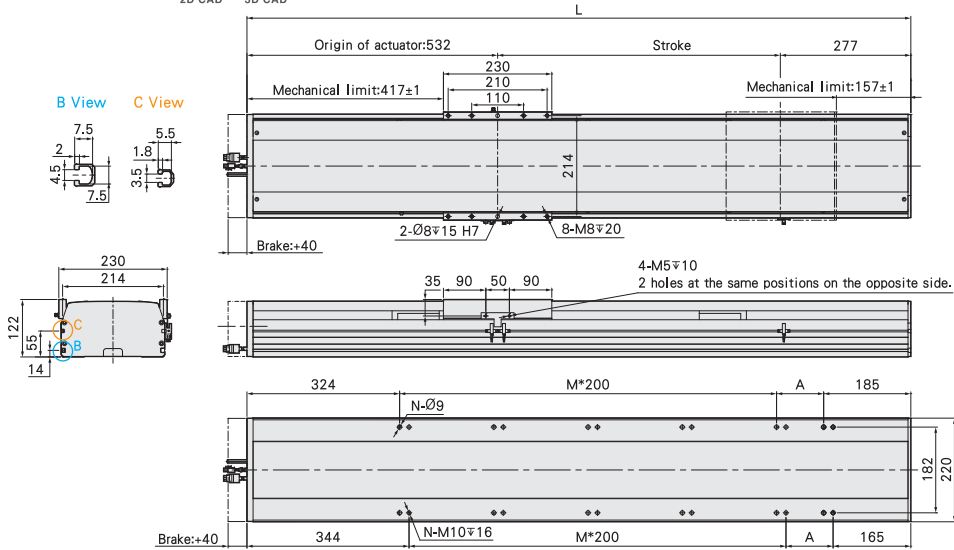
M

Motor Hidden In



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Unit: mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	
L	1659	1709	1759	1809	1859	1909	1959	2009	2059	2109	2159	2209	2259	2309	2359	2409	2459	2509	2559	2609	2659	2709	2759	2809	2859	2909	2959	3009	3059	3109	3159	3209	
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	
M	5	5	6	6	6	6	7	7	7	7	8	8	8	8	8	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	13	13
N	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	24	26	26	26	28	28	28	28	30	30	
KG	56.61	57.97	59.33	60.69	62.05	63.41	64.77	66.13	67.49	68.85	70.21	71.57	72.93	74.29	75.65	77.01	78.37	79.73	81.09	82.45	83.81	85.17	86.53	87.89	89.25	90.61	91.97	93.33	94.69	96.05	97.41	98.77	

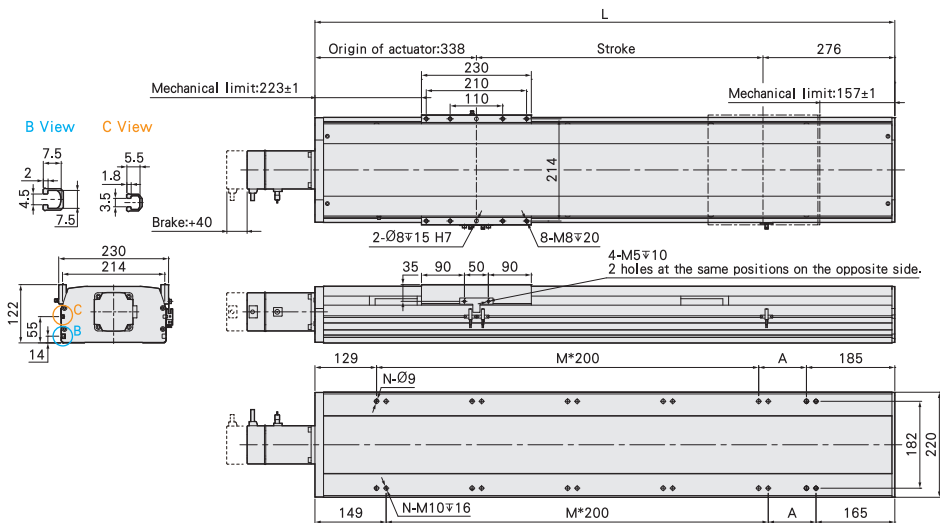
BC

Motor Exposed



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Unit: mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	
L	1464	1514	1564	1614	1664	1714	1764	1814	1864	1914	1964	2014	2064	2114	2164	2214	2264	2314	2364	2414	2464	2514	2564	2614	2664	2714	2764	2814	2864	2914	2964	3014	
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	
M	5	5	6	6	6	6	7	7	7	7	8	8	8	8	8	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	13	13
N	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	24	26	26	26	28	28	28	28	30	30	
KG	53.91	55.27	56.63	57.99	59.35	60.71	62.07	63.43	64.79	66.15	67.51	68.87	70.23	71.59	72.95	74.31	75.67	77.03	78.39	79.75	81.11	82.47	83.83	85.19	86.55	87.91	89.27	90.63	91.99	93.35	94.71	96.07	

Motor Left Side /  
Motor Right Side

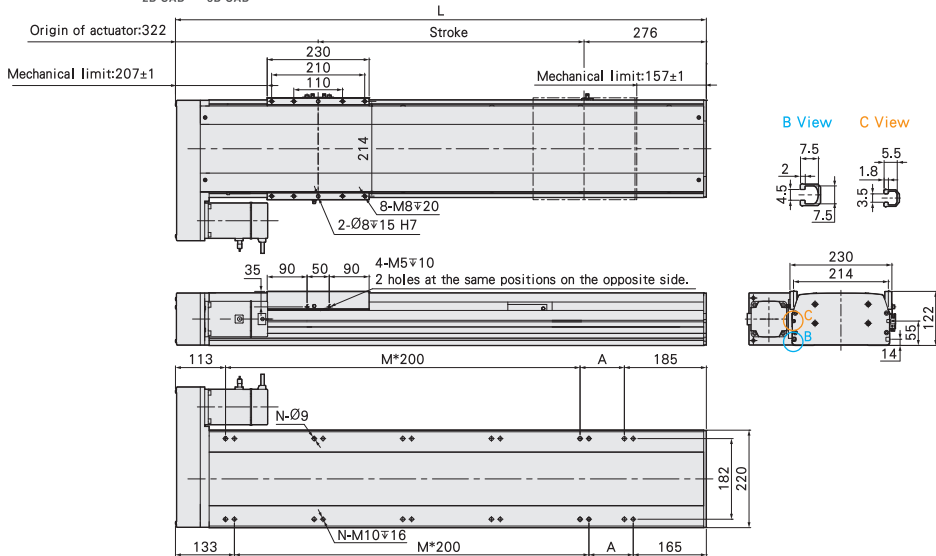
BL

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400
L	1448	1498	1548	1598	1648	1698	1748	1798	1848	1898	1948	1998	2048	2098	2148	2198	2248	2298	2348	2398	2448	2498	2548	2598	2648	2698	2748	2798	2848	2898	2948	2998
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	13	13
N	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30
KG	55.11	56.47	57.83	59.19	60.55	61.91	63.27	64.63	65.99	67.35	68.71	70.07	71.43	72.79	74.15	75.51	76.87	78.23	79.59	80.95	82.31	83.67	85.03	86.39	87.75	89.11	90.47	91.83	93.19	94.55	95.91	97.27

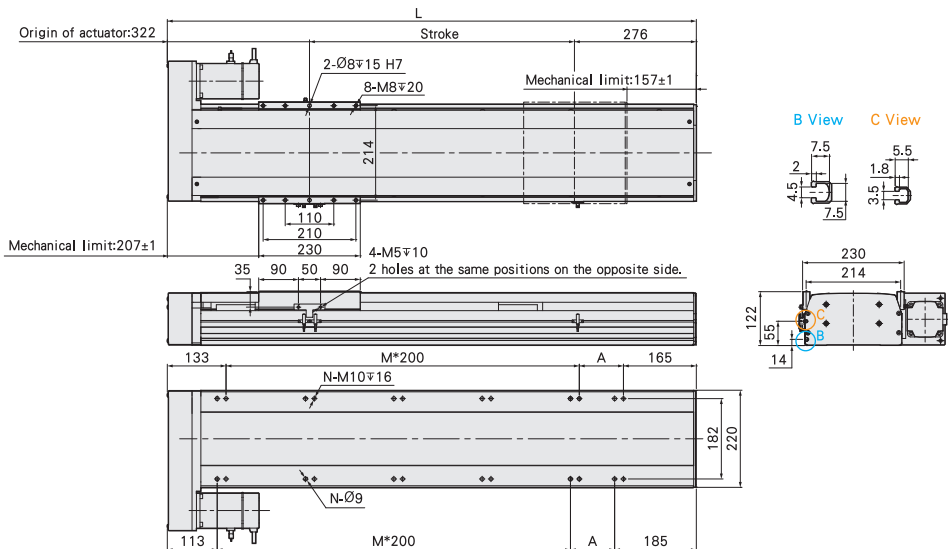
BR

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400
L	1448	1498	1548	1598	1648	1698	1748	1798	1848	1898	1948	1998	2048	2098	2148	2198	2248	2298	2348	2398	2448	2498	2548	2598	2648	2698	2748	2798	2848	2898	2948	2998
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	13	13
N	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30
KG	55.11	56.47	57.83	59.19	60.55	61.91	63.27	64.63	65.99	67.35	68.71	70.07	71.43	72.79	74.15	75.51	76.87	78.23	79.59	80.95	82.31	83.67	85.03	86.39	87.75	89.11	90.47	91.83	93.19	94.55	95.91	97.27

1 axis  
ETH

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

## Motor Bottom Side

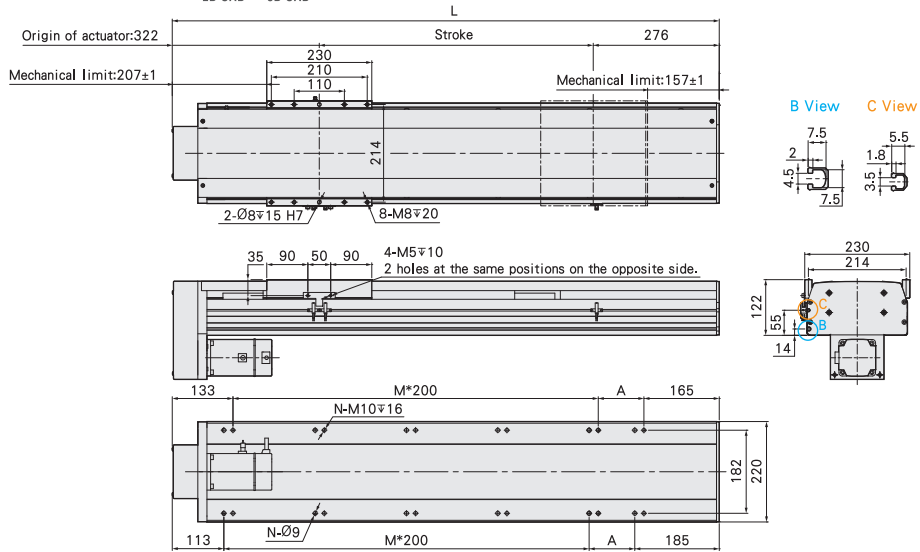


Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	
L	1448	1498	1548	1598	1648	1698	1748	1798	1848	1898	1948	1998	2048	2098	2148	2198	2248	2298	2348	2398	2448	2498	2548	2598	2648	2698	2748	2798	2848	2898	2948	2998	
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	
M	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13
N	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	
KG	55.11	56.47	57.83	59.19	60.55	61.91	63.27	64.63	65.99	67.35	68.71	70.07	71.43	72.79	74.15	75.51	76.87	78.23	79.59	80.95	82.31	83.67	85.03	86.39	87.75	89.11	90.47	91.83	93.19	94.55	95.91	97.27	



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
**ETH**

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETH**

ETH13

ETH14

ETH17

ETH22

ETH17M

ETH22M

**MEMO**

## Electric Actuator

**ETB Series**

## Standard/Belt Type

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTYBall Screw Type  
ETHBelt Type  
ETB / MClean Room  
Ball Screw Type  
ECHClean Room  
Belt Type  
ECB

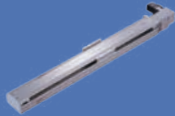
Reference

## CONTENTS

## Standard/Belt Type

## MEDIUM

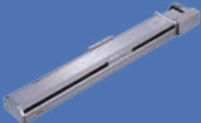
ETB10



Width	102mm
Max. stroke	2550mm .....265
Max. payload	10kg

## MEDIUM

ETB14M



Width	135mm
Max. stroke	3050mm .....271
Max. payload	25kg

## LARGE

ETB17M

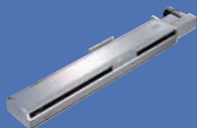


Width	170mm
Max. stroke	3050mm .....277
Max. payload	45kg

Long  
stroke

## LARGE

ETB22M



Width	220mm
Max. stroke	3500mm .....283
Max. payload	85kg

Long  
stroke

## Spec Index - Standard Belt Actuator

Use Where	Driven Mode	Model Spec.	Reducer Mechanism	Motor Output (w)	Width (mm)	Repeatability (mm)	Belt Specs		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
							Belt Width (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Timing Belt	ETB10	2.5	100W	102	±0.04	15	32	10		1600
		ETB14M		200W	135	±0.04	22	40	25		2000
		ETB17M		400W	170	±0.04	30	40	45		2000
		ETB22M		750W	220	±0.04	50	40	85		2000

\*1 The maximum speed is based on the servo motor's maximum rpm of 3,000.

Stroke(mm) & Maximum Speed(mm/s) <span style="color: #ADD8E6;">■</span> Speed																								Page				
Stroke	50	300	450	600	800	900	1050	1200	1350	1500	1650	1800	1950	2100	2150	2300	2550	2600	2750	3050	3150	3300	3500	3600	3750	3900	4050	
									1600																			265
										2000																		271
										2000																		277
											2000																	283

Structure

Bullin Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# ETB10 1-axis

▶ Belt Drive

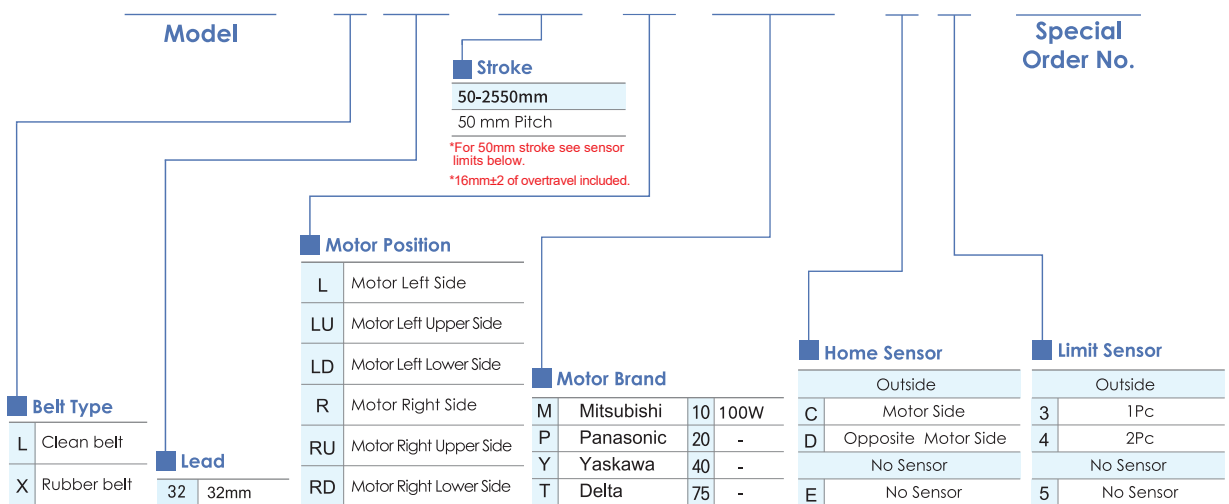


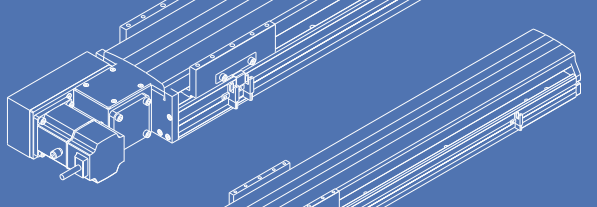
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>2550mm</b>	Maximum Speed <b>1600mm/s</b>	Motor Output <b>100W</b>	Belt Width <b>15 mm</b>	Linear Guide <b>20X18-1</b>
------------------------------	-------------------------------	--------------------------	-------------------------	-----------------------------

## Ordering Method

# ETB10 - L 32 - 100 - L - M 10 - C 4 - 0001





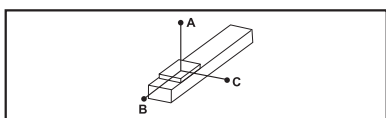
**Specifications**

Actuator Specs	Belt Lead (mm)		32	
	Maximum Speed (mm/s)		1600	
	Max payload	Horizontal (kg)	10	
		Vertical (kg)	-	
	Rated Thrust (N)		61	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1181
			2540 km of travel	319
		Static Horizontal (kg)		3891
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		1.1	
	Maximum Acceleration (in/sec)		5	
	Friction Coefficient		<0.01	
Stroke Pitch (mm)		50-2550mm / 50mm Pitch		

Parts Specs	Belt Lead (mm)		32
	Belt	Standard tension value Tis (N)	99
		Maximum value of allowed tension Timax (N)	195
	Linear Guide	Basic dynamic load rating C (KG)	2125
		Basic static load rating Co (KG)	3891
	Fixed Bearing	Basic dynamic load rating Cor (N)	4780
		Basic static load rating Cr (N)	10200
	AC Servo Motor Output (W)		100
	Belt Width (mm)		15
	High Rigidity Linear Guide (mm)		W20XH18
	Home Sensor	Outside	EE-SX672(NPN)

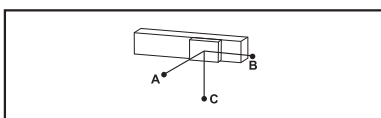
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

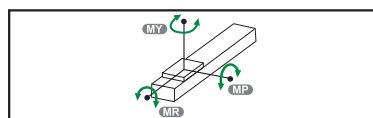
Horizontal Installation	A	B	C
5kg	495	152	128
8kg	301	91	77
10kg	236	71	60



(Unit : mm)

Wall Installation	A	B	C
4kg	162	192	625
7kg	89	106	347
10kg	60	71	236

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	110
<b>MP</b>	110
<b>MR</b>	120

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B

**Dynamic Loading moment**

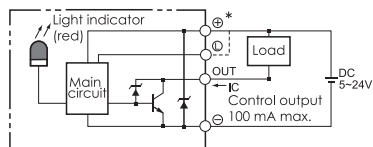
50 km of travel (Unit : N.m)

<b>MY</b>	19
<b>MP</b>	19
<b>MR</b>	20

2540 km of travel (Unit : N.m)

<b>MY</b>	5
<b>MP</b>	5
<b>MR</b>	5

**Sensor Layout**



## Motor Left Side / Motor Right Side

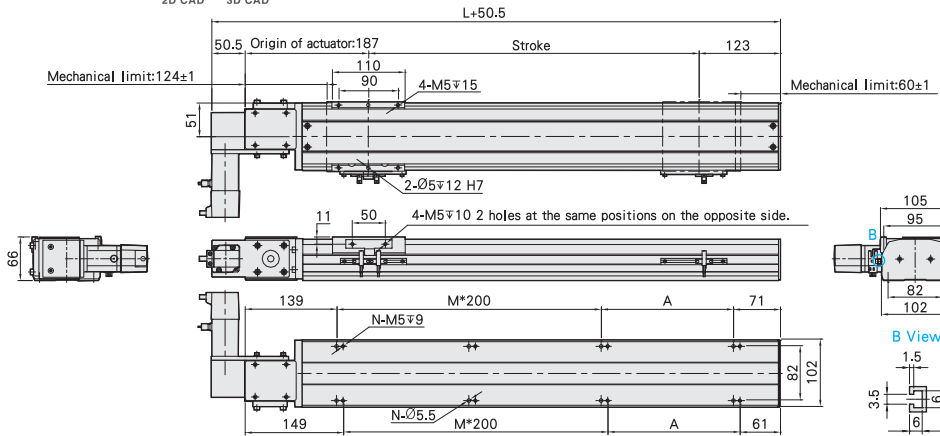


### Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44

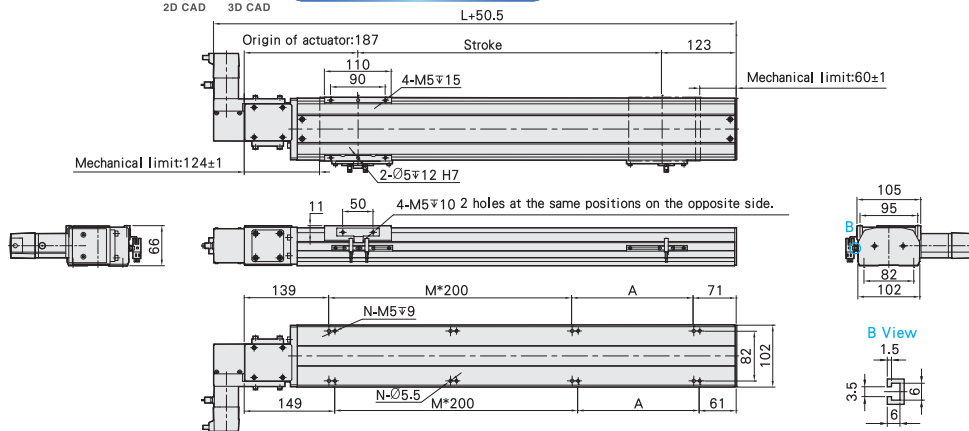


### Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44



**Motor Left Upper Side / Motor Right Upper Side**

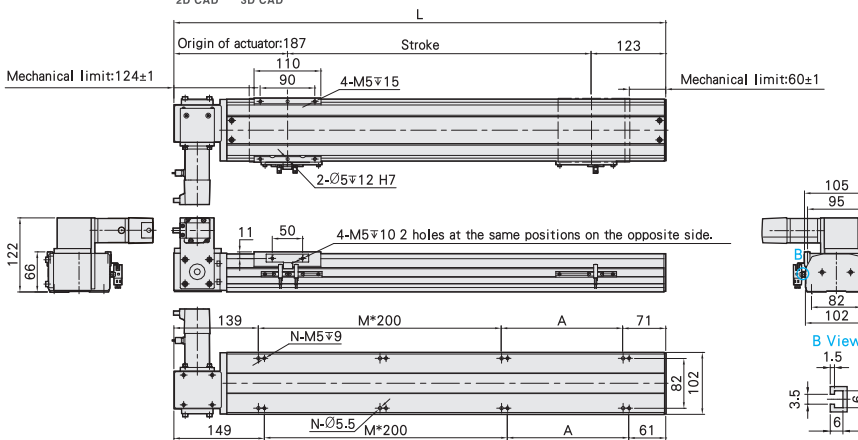


**Motor Left Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44

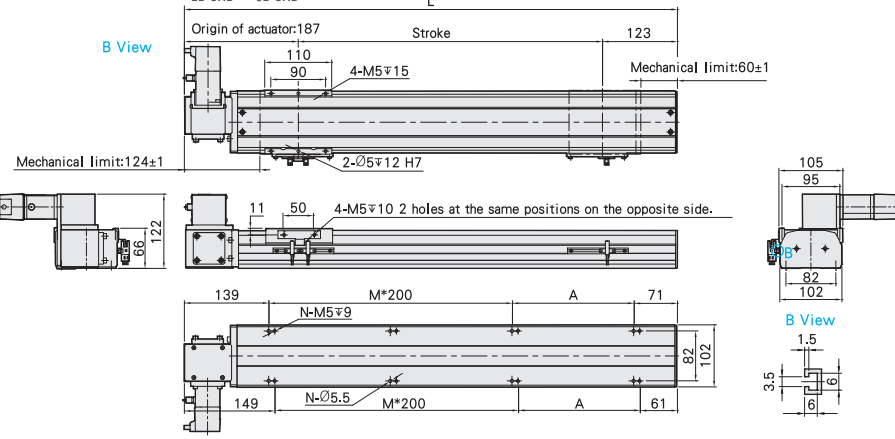


**Motor Right Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44

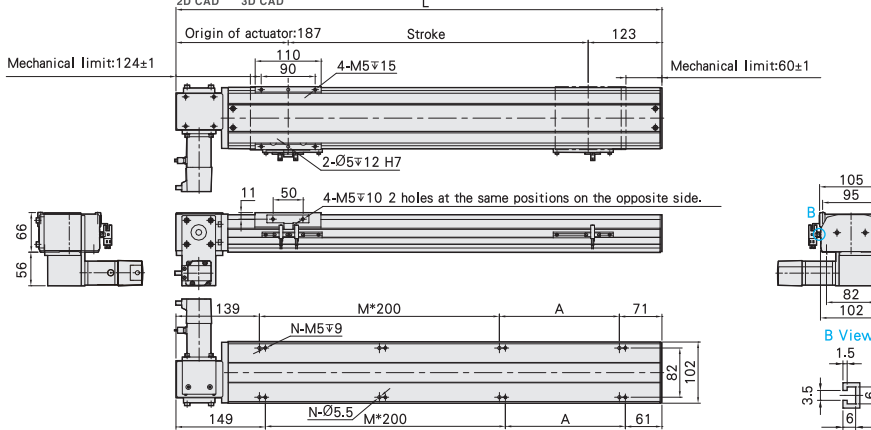
## Motor Left Lower Side / Motor Right Lower Side

### LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

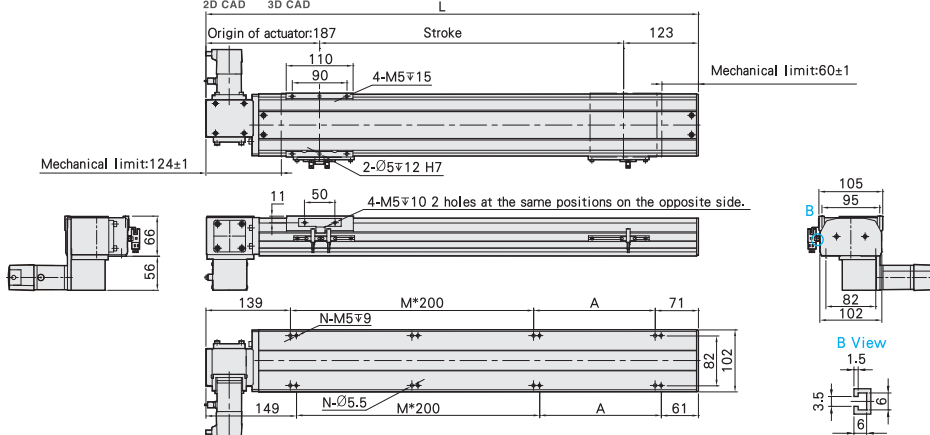
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L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44

### RD Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	360	410	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460	1510	1560	1610
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	6.37	6.8	7.23	7.65	8.07	8.5	8.92	9.34	9.76	10.19	10.61	11.03	11.46	11.88	12.3	12.73	13.15	13.57	13.99	14.42	14.84	15.26	15.68	16.1	16.52	16.94

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1660	1710	1760	1810	1860	1910	1960	2010	2060	2110	2160	2210	2260	2310	2360	2410	2460	2510	2560	2610	2660	2710	2760	2810	2860
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	17.36	17.78	18.2	18.62	19.04	19.46	19.88	20.3	20.72	21.14	21.56	21.98	22.4	22.82	23.24	23.66	24.08	24.5	24.92	25.34	25.76	26.18	26.6	27.02	27.44

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETB**

ETB10

ETB14M

ETB17M

ETB22M

# ETB14M 1-axis

▶ Belt Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **3050mm**
Maximum Speed **2000mm/s**
Motor Output **200W**
Belt Width **22 mm**
Linear Guide **15X12,5-2pc**

## Ordering Method

# ETB14M - L 40 - 100 - L - M 20 - C 4 - 0001

Model

Special Order No.

### Stroke

50-3050mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*16mm±2 of overtravel included.

### Motor Position

L	Motor Left Side
LU	Motor Left Upper Side
LD	Motor Left Lower Side
R	Motor Right Side
RU	Motor Right Upper Side
RD	Motor Right Lower Side

### Motor Brand

M	Mitsubishi	10	-
P	Panasonic	20	200W
Y	Yaskawa	40	-
T	Delta	75	-

### Home Sensor

Outside	
C	Motor Side
D	Opposite Motor Side
No Sensor	
E	No Sensor

### Limit Sensor

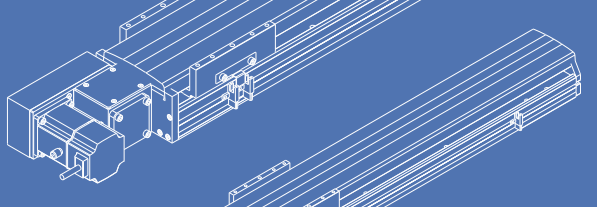
Outside	
3	1Pc
4	2Pc
No Sensor	
5	No Sensor

### Belt Type

L	Clean belt
X	Rubber belt

### Lead

40	40mm
----	------



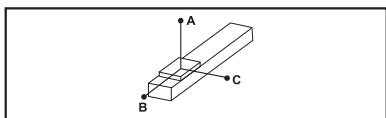
**Specifications**

<b>Actuator Specs</b>	Belt Lead (mm)		40	
	Maximum Speed (mm/s)		2000	
	Max payload	Horizontal (kg)	25	
		Vertical (kg)	-	
	Rated Thrust (N)		100	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	2412
			2540 km of travel	651
		Static Horizontal (kg)	8824	
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		2.2	
	Maximum Acceleration (in/sec)		5	
	Friction Coefficient		<0.01	
Stroke Pitch (mm)		50-3050mm / 50mm Pitch		

<b>Parts Specs</b>	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	137
		Maximum value of allowed tension Timax (N)	261
	Linear Guide	Basic dynamic load rating C (KG)	4824
		Basic static load rating Co (KG)	8824
	Fixed Bearing	Basic dynamic load rating Cor (N)	10000
		Basic static load rating Cr (N)	18800
	AC Servo Motor Output (W)		200
	Belt Width (mm)		22
	High Rigidity Linear Guide (mm)		W15XH12.5
	Home Sensor	Outside	EE-SX672(NPN)

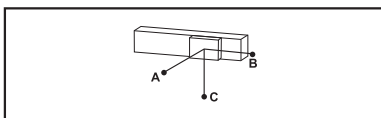
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

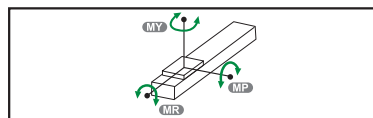
Horizontal Installation	A	B	C
10kg	1794	688	538
20kg	858	251	253
25kg	670	324	197



(Unit : mm)

Wall Installation	A	B	C
15kg	348	446	1170
18kg	285	365	961
25kg	197	251	670

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	551
<b>MP</b>	552
<b>MR</b>	485

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADHT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C20602ES	ASD-B20221-B

**Dynamic Loading moment**

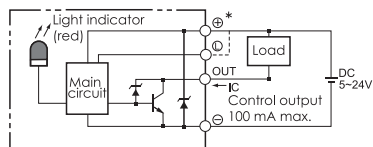
(Unit : N.m)

50 km of travel	
<b>MY</b>	210
<b>MP</b>	210
<b>MR</b>	209

(Unit : N.m)

2540 km of travel	
<b>MY</b>	55
<b>MP</b>	55
<b>MR</b>	55

**Sensor Layout**



### Motor Left Side / Motor Right Side

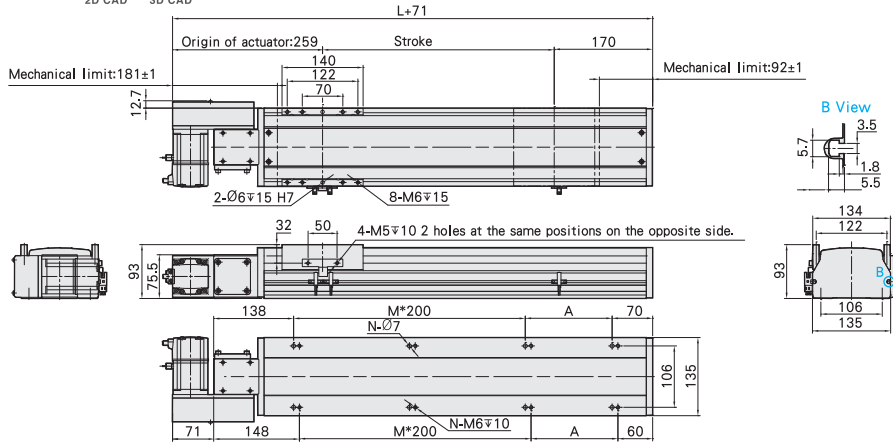


#### Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	13	14	14	14	14	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9

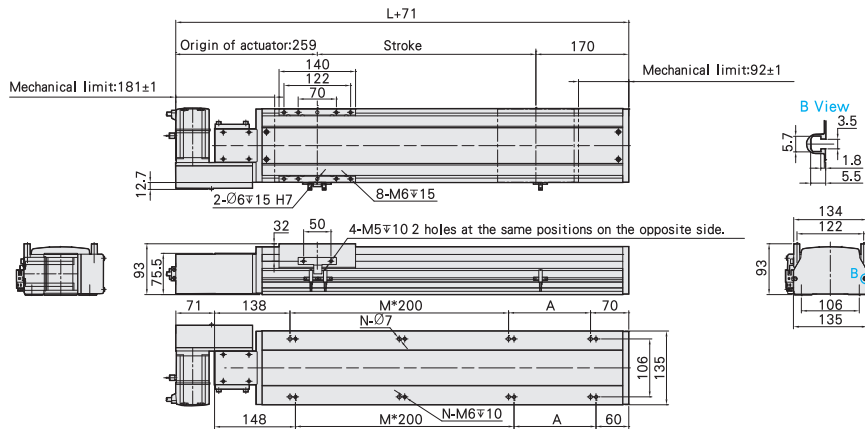


#### Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	13	14	14	14	14	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9

Motor Left Upper Side / Motor Right Upper Side

**LU Motor Left Upper Side** Download CAD data at [www.toyorobot.com](http://www.toyorobot.com) Unit: mm

Stroke 170  
Origin of actuator: 191.5  
Mechanical limit: 113.5±1  
Mechanical limit: 92±1  
B View  
2-Ø6 $\pm$ 15 H7  
4-M5 $\pm$ 10 2 holes at the same positions on the opposite side.  
M $\times$ 200  
N-Ø7  
N-M6 $\pm$ 10

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9

**RU Motor Right Upper Side** Download CAD data at [www.toyorobot.com](http://www.toyorobot.com) Unit: mm

Stroke 170  
Origin of actuator: 191.5  
Mechanical limit: 113.5±1  
Mechanical limit: 92±1  
B View  
2-Ø6 $\pm$ 15 H7  
4-M5 $\pm$ 10 2 holes at the same positions on the opposite side.  
M $\times$ 200  
N-Ø7  
N-M6 $\pm$ 10

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9

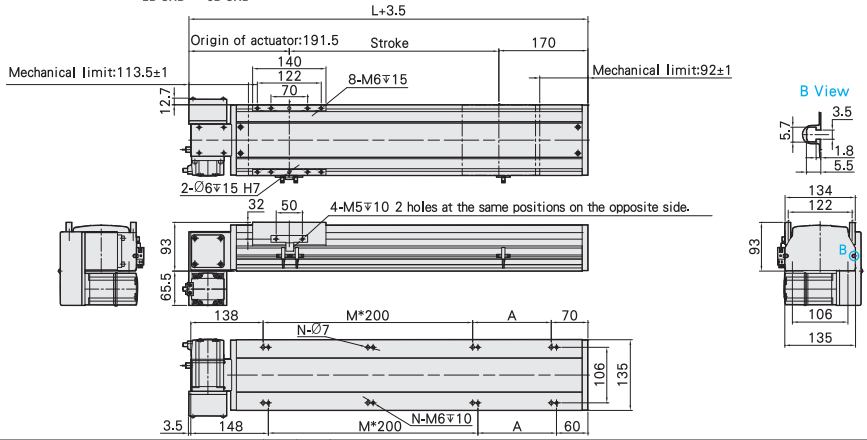
## Motor Left Lower Side / Motor Right Lower Side

### LD Motor Left Upper Side



Download CAD data at [www.toyrobot.com](http://www.toyrobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

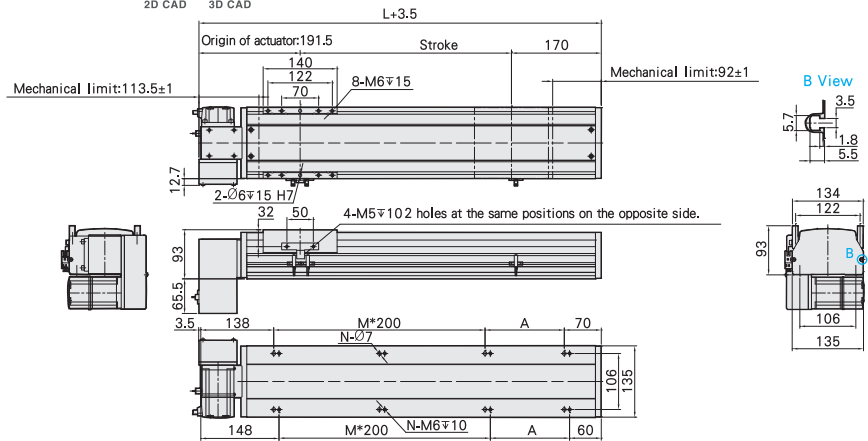
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L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9

### RD Motor Right Upper Side



Download CAD data at [www.toyrobot.com](http://www.toyrobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	408	458	508	558	608	658	708	758	808	858	908	958	1008	1058	1108	1158	1208	1258	1308	1358	1408	1458	1508	1558	1608	1658	1708	1758	1808	1858	1908
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	8.2	8.6	9	9.5	10	10.5	11	11.4	12	12.4	13	13.4	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.3	17.9	18.5	19.1	19.7	20.3	20.9	21.5	22.1	22.7	23.3	23.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1958	2008	2058	2108	2158	2208	2258	2308	2358	2408	2458	2508	2558	2608	2658	2708	2758	2808	2858	2908	2958	3008	3058	3108	3158	3208	3258	3308	3358	3408
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	24.5	25.1	25.7	26.3	26.9	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETB**

ETB10

**ETB14M**

ETB17M

ETB22M

# ETB17M 1-axis

▶ Belt Drive



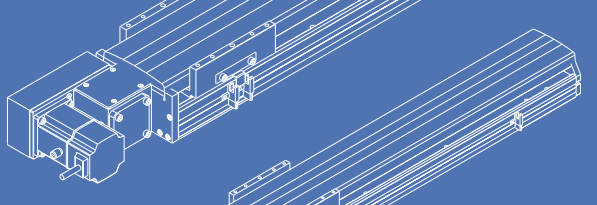
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>3050mm</b>	Maximum Speed <b>2000mm/s</b>	Motor Output <b>400W</b>	Belt Width <b>30 mm</b>	Linear Guide <b>20X15-2pc</b>
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## Ordering Method

# ETB17M - L 40 - 50 - L - M 40 - C 4 - 0001

<p><b>Model</b></p>	<p><b>Stroke</b> 50-3050mm 50 mm Pitch <small>*For 50mm stroke see sensor limits below. *18mm±2 of overtravel included.</small></p>	<p><b>Special Order No.</b></p>																																																						
<p><b>Belt Type</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>L</td> <td>Clean belt</td> </tr> <tr> <td>X</td> <td>Rubber belt</td> </tr> </table>	L	Clean belt	X	Rubber belt	<p><b>Motor Position</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>L</td><td>Motor Left Side</td></tr> <tr><td>LU</td><td>Motor Left Upper Side</td></tr> <tr><td>LD</td><td>Motor Left Lower Side</td></tr> <tr><td>R</td><td>Motor Right Side</td></tr> <tr><td>RU</td><td>Motor Right Upper Side</td></tr> <tr><td>RD</td><td>Motor Right Lower Side</td></tr> </table>	L	Motor Left Side	LU	Motor Left Upper Side	LD	Motor Left Lower Side	R	Motor Right Side	RU	Motor Right Upper Side	RD	Motor Right Lower Side	<p><b>Motor Brand</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>M</td><td>Mitsubishi</td><td>10</td><td>-</td></tr> <tr><td>P</td><td>Panasonic</td><td>20</td><td>-</td></tr> <tr><td>Y</td><td>Yaskawa</td><td>40</td><td>400W</td></tr> <tr><td>T</td><td>Delta</td><td>75</td><td>-</td></tr> </table>	M	Mitsubishi	10	-	P	Panasonic	20	-	Y	Yaskawa	40	400W	T	Delta	75	-	<p><b>Home Sensor</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">Outside</td></tr> <tr><td>C</td><td>Motor Side</td></tr> <tr><td>D</td><td>Opposite Motor Side</td></tr> <tr><td colspan="2">No Sensor</td></tr> <tr><td>E</td><td>No Sensor</td></tr> </table>	Outside		C	Motor Side	D	Opposite Motor Side	No Sensor		E	No Sensor	<p><b>Limit Sensor</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">Outside</td></tr> <tr><td>3</td><td>1Pc</td></tr> <tr><td>4</td><td>2Pc</td></tr> <tr><td colspan="2">No Sensor</td></tr> <tr><td>5</td><td>No Sensor</td></tr> </table>	Outside		3	1Pc	4	2Pc	No Sensor		5	No Sensor
L	Clean belt																																																							
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5	No Sensor																																																							
<p><b>Lead</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>40</td> <td>40mm</td> </tr> </table>	40	40mm																																																						
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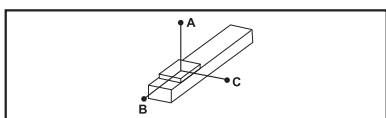
**Specifications**

Actuator Specs	Belt Lead (mm)		40	
	Maximum Speed (mm/s)		2000	
	Max payload	Horizontal (kg)	45	
		Vertical (kg)	-	
	Rated Thrust (N)		204	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	3792
			2540 km of travel	261
		Static Horizontal (kg)		13228
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		4.5	
	Maximum Acceleration (in/sec)		5	
Friction Coefficient		<0.01		
Stroke Pitch (mm)		50-3050mm / 50mm Pitch		

Parts Specs	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	220
		Maximum value of allowed tension Timax (N)	391
	Linear Guide	Basic dynamic load rating C (KG)	7584
		Basic static load rating Co (KG)	13228
	Fixed Bearing	Basic dynamic load rating Cor (N)	10000
		Basic static load rating Cr (N)	18800
	AC Servo Motor Output (W)		400
	Belt Width (mm)		30
	High Rigidity Linear Guide (mm)		W20XH15
	Home Sensor	Outside	EE-SX672(NPN)

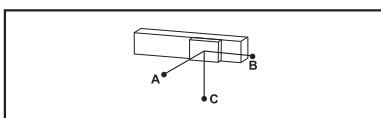
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

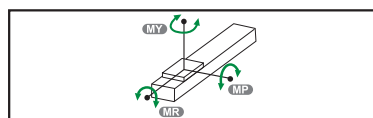
Horizontal Installation	A	B	C
10kg	2942	1133	1033
20kg	1430	547	498
30kg	926	350	320
45kg	588	219	201



(Unit : mm)

Wall Installation	A	B	C
15kg	676	742	1933
25kg	390	428	1127
35kg	269	294	781
45kg	201	219	588

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1032
<b>MP</b>	1034
<b>MR</b>	908

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

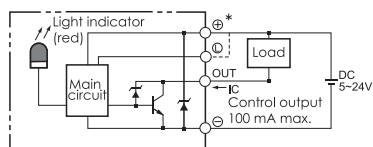
**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B

**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
<b>MY</b>	339
<b>MP</b>	339
<b>MR</b>	416
2540 km of travel (Unit : N.m)	
<b>MY</b>	89
<b>MP</b>	89
<b>MR</b>	110

**Sensor Layout**



### Motor Left Side / Motor Right Side

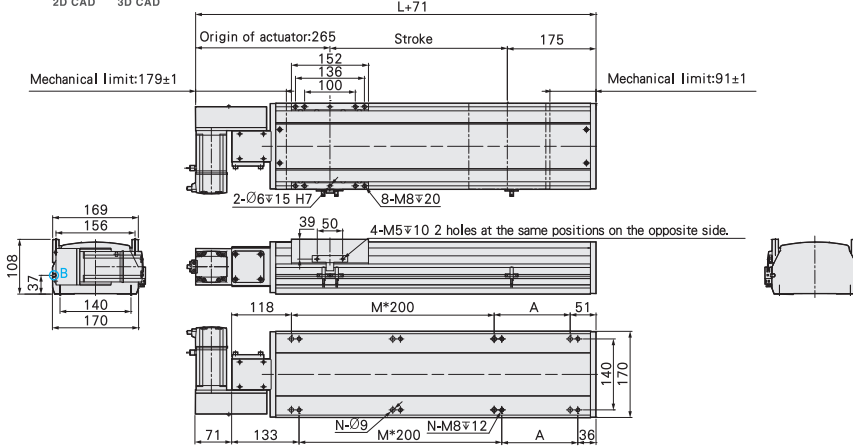
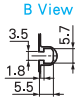


#### Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269	1319	1369	1419	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	10.2	12	13.8	14.6	15.4	16.1	16.9	17.7	18.5	19.2	20	20.8	21.6	22.3	23.1	23.9	24.7	25.4	26.2	27	27.8	28.6	29.4	30.2	31	31.8	32.6	33.4	34.2	35	35.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619	2669	2719	2769	2819	2869	2919	2969	3019	3069	3119	3169	3219	3269	3319	3369	3419
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36
KG	36.6	37.4	38.2	39	39.8	40.6	41.4	42.2	43	43.8	44.6	45.4	46.2	47	47.8	48.6	49.4	50.2	51	51.8	52.6	53.4	54.2	55	55.8	56.6	57.4	58.2	59	59.8

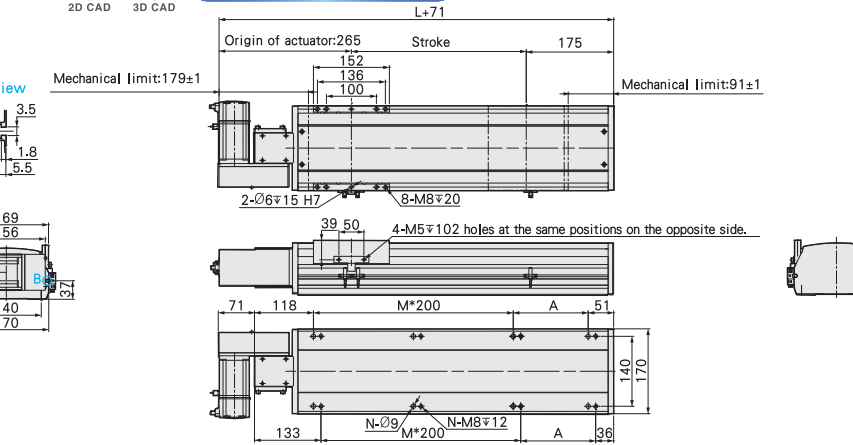
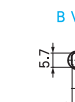


#### Motor Right Side



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Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269	1319	1369	1419	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	10.2	12	13.8	14.6	15.4	16.1	16.9	17.7	18.5	19.2	20	20.8	21.6	22.3	23.1	23.9	24.7	25.4	26.2	27	27.8	28.6	29.4	30.2	31	31.8	32.6	33.4	34.2	35	35.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619	2669	2719	2769	2819	2869	2919	2969	3019	3069	3119	3169	3219	3269	3319	3369	3419
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36
KG	36.6	37.4	38.2	39	39.8	40.6	41.4	42.2	43	43.8	44.6	45.4	46.2	47	47.8	48.6	49.4	50.2	51	51.8	52.6	53.4	54.2	55	55.8	56.6	57.4	58.2	59	59.8

Structure	Bullfinch Guideway Ball Screw Type GTH / GTY
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

## Motor Left Upper Side / Motor Right Upper Side

### Motor Left Upper Side

[Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

Origin of actuator:197.5  
Stroke: 175  
Mechanical limit:111.5±1  
Mechanical limit:91±1

Stroke: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1050, 1100, 1150, 1200, 1250, 1300, 1350, 1400, 1450, 1500, 1550

Stroke: 1600, 1650, 1700, 1750, 1800, 1850, 1900, 1950, 2000, 2050, 2100, 2150, 2200, 2250, 2300, 2350, 2400, 2450, 2500, 2550, 2600, 2650, 2700, 2750, 2800, 2850, 2900, 2950, 3000, 3050

### Motor Right Upper Side

[Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

Origin of actuator:197.5  
Stroke: 175  
Mechanical limit:111.5±1  
Mechanical limit:91±1

Stroke: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1050, 1100, 1150, 1200, 1250, 1300, 1350, 1400, 1450, 1500, 1550

Stroke: 1600, 1650, 1700, 1750, 1800, 1850, 1900, 1950, 2000, 2050, 2100, 2150, 2200, 2250, 2300, 2350, 2400, 2450, 2500, 2550, 2600, 2650, 2700, 2750, 2800, 2850, 2900, 2950, 3000, 3050

1 axis	ETB
ETB10	
ETB14M	
ETB17M	
ETB22M	

## Motor Left Lower Side / Motor Right Lower Side

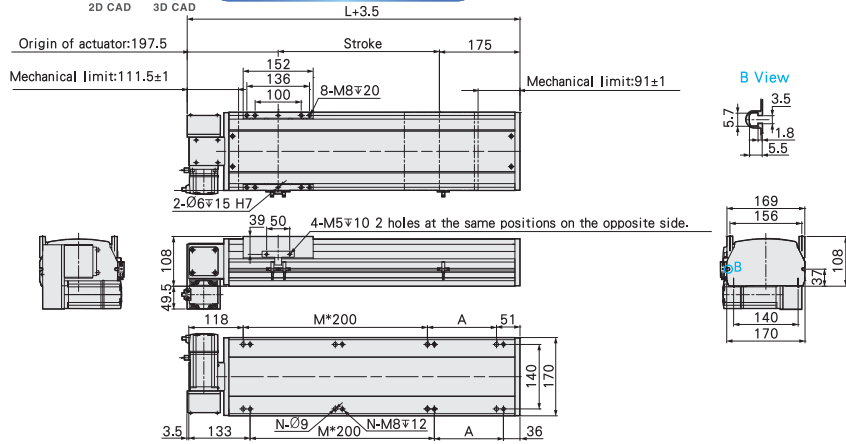


### Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269	1319	1369	1419	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	10.2	12	13.8	14.6	15.4	16.1	16.9	17.7	18.5	19.2	20	20.8	21.6	22.3	23.1	23.9	24.7	25.4	26.2	27	27.8	28.6	29.4	30.2	31	31.8	32.6	33.4	34.2	35	35.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	
L	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619	2669	2719	2769	2819	2869	2919	2969	3019	3069	3119	3169	3219	3269	3319	3369	3419	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	13	13	14	14	14	15	15	15	16
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	
KG	36.6	37.4	38.2	39	39.8	40.6	41.4	42.2	43	43.8	44.6	45.4	46.2	47	47.8	48.6	49.4	50.2	51	51.8	52.6	53.4	54.2	55	55.8	56.6	57.4	58.2	59	59.8	

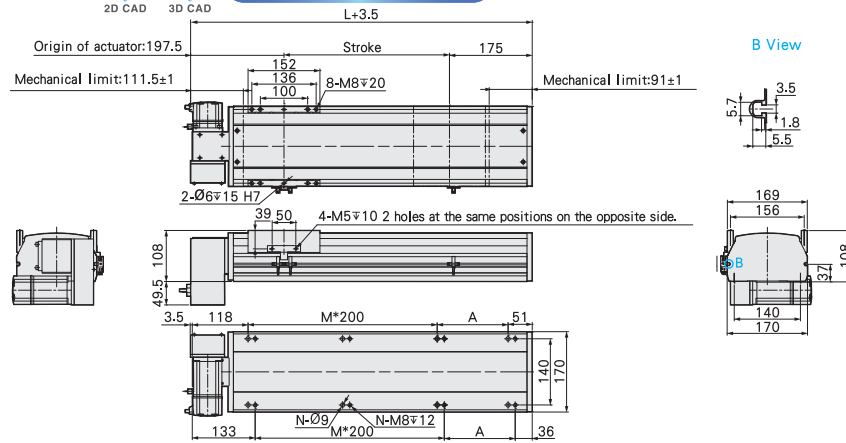


### Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
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A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	10.2	12	13.8	14.6	15.4	16.1	16.9	17.7	18.5	19.2	20	20.8	21.6	22.3	23.1	23.9	24.7	25.4	26.2	27	27.8	28.6	29.4	30.2	31	31.8	32.6	33.4	34.2	35	35.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	
L	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619	2669	2719	2769	2819	2869	2919	2969	3019	3069	3119	3169	3219	3269	3319	3369	3419	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	13	13	14	14	14	15	15	15	16
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	
KG	36.6	37.4	38.2	39	39.8	40.6	41.4	42.2	43	43.8	44.6	45.4	46.2	47	47.8	48.6	49.4	50.2	51	51.8	52.6	53.4	54.2	55	55.8	56.6	57.4	58.2	59	59.8	

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ETB**

ETB10

ETB14M

**ETB17M**

ETB22M

# ETB22M 1-axis

▶ Belt Drive

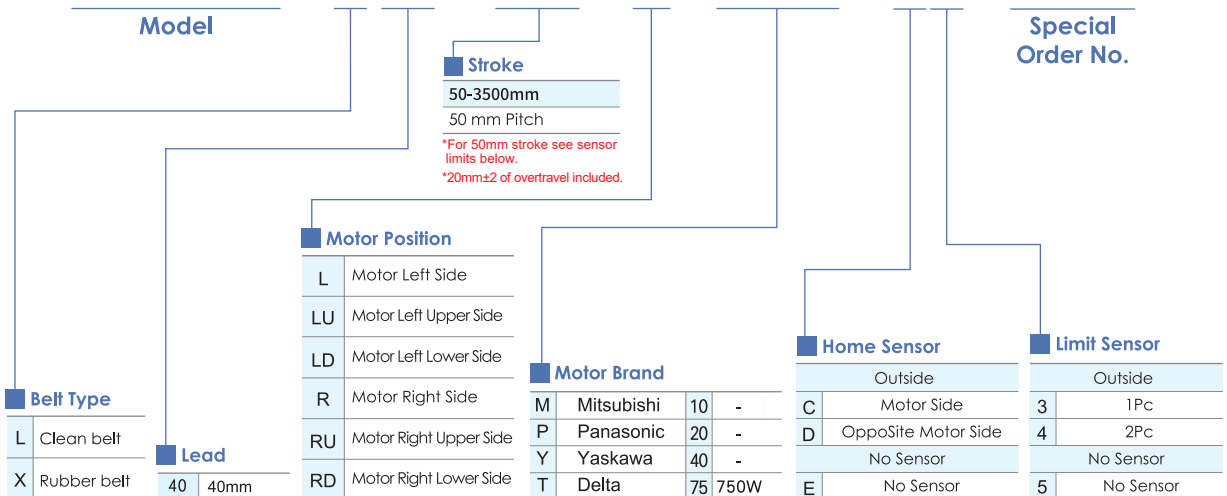


The picture above is not to scale. See the drawing for actual dimensions.

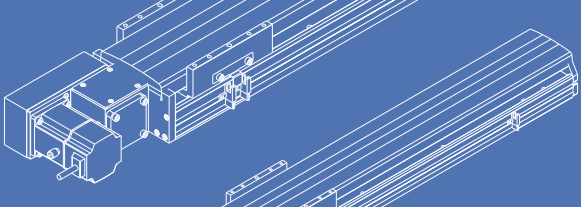
Maximum Stroke <b>3500mm</b>	Maximum Speed <b>2000mm/s</b>	Motor Output <b>750W</b>	Belt Width <b>50 mm</b>	Linear Guide <b>23X18-2pc</b>
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## Ordering Method

# ETB22M - L 40 - 100 - L - M 75 - C4 - 0001







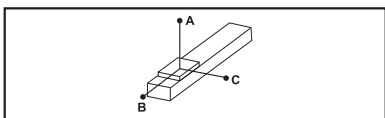
**Specifications**

Actuator Specs	Belt Lead (mm)		40	
	Maximum Speed (mm/s)		2000	
	Max payload	Horizontal (kg)	85	
		Vertical (kg)	-	
	Rated Thrust (N)		367	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	5162
			2540 km of travel	1394
		Static Horizontal (kg)		18012
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		8.4	
	Maximum Acceleration (in/sec)		5	
	Friction Coefficient		<0.01	
Stroke Pitch (mm)		50-3500mm / 50mm Pitch		

Parts Specs	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	376
		Maximum value of allowed tension Timax (N)	651
	Linear Guide	Basic dynamic load rating C (KG)	10324
		Basic static load rating Co (KG)	18012
	Fixed Bearing	Basic dynamic load rating Cor (N)	20000
		Basic static load rating Cr (N)	37600
	AC Servo Motor Output (W)		750
	Belt Width (mm)		50
	High Rigidity Linear Guide (mm)		W23XH18
	Home Sensor	Outside	EE-SX672(NPN)

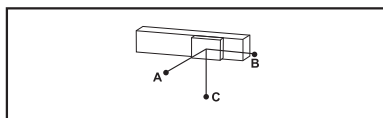
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

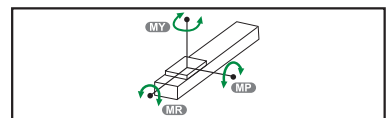
Horizontal Installation	A	B	C
45kg	1588	600	349
65kg	1052	328	285
85kg	768	281	206



(Unit : mm)

Wall Installation	A	B	C
40kg	500	685	1805
60kg	315	430	1152
85kg	206	281	768

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	2052
<b>MP</b>	2052
<b>MR</b>	1810

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MBDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B

**Dynamic Loading moment**

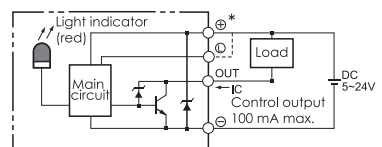
(Unit : N.m)

50 km of travel	
<b>MY</b>	879
<b>MP</b>	879
<b>MR</b>	799

(Unit : N.m)

2540 km of travel	
<b>MY</b>	231
<b>MP</b>	231
<b>MR</b>	210

**Sensor Layout**



### Motor Left Side / Motor Right Side

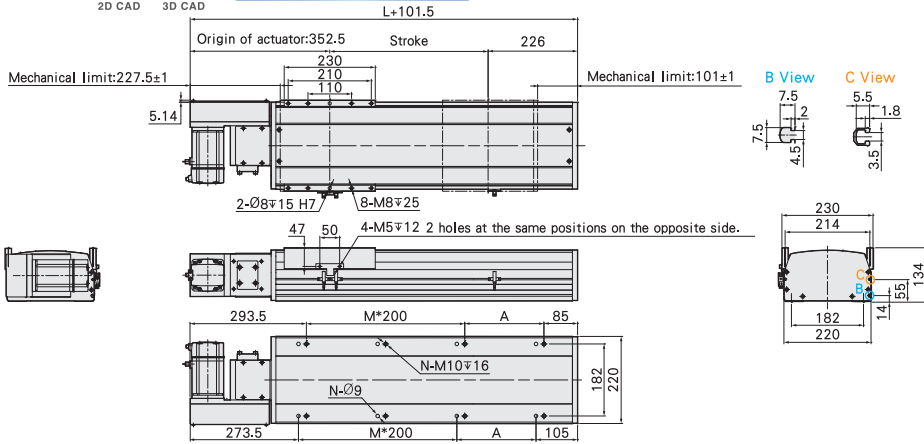


#### Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	
N	6	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	59.2	59.8	60	61.2	62.4	63.6	64.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8

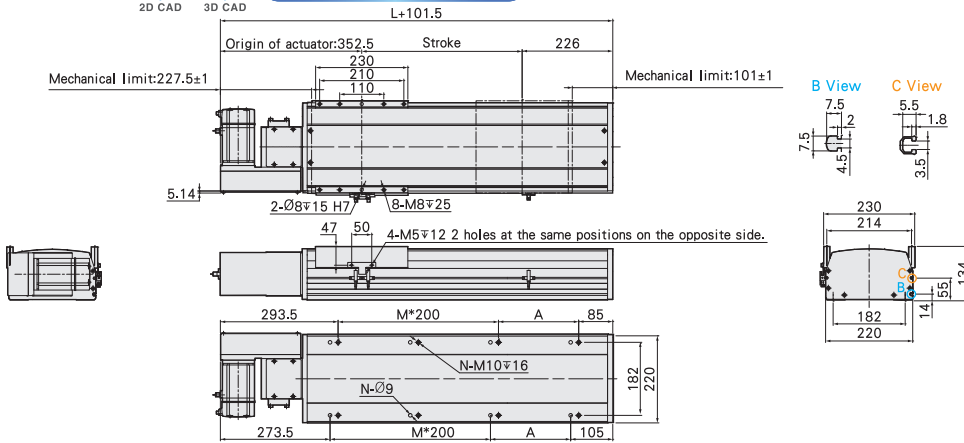


#### Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	
N	6	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	59.2	59.8	60	61.2	62.4	63.6	64.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8

Motor Left Upper Side /  
Motor Right Upper Side

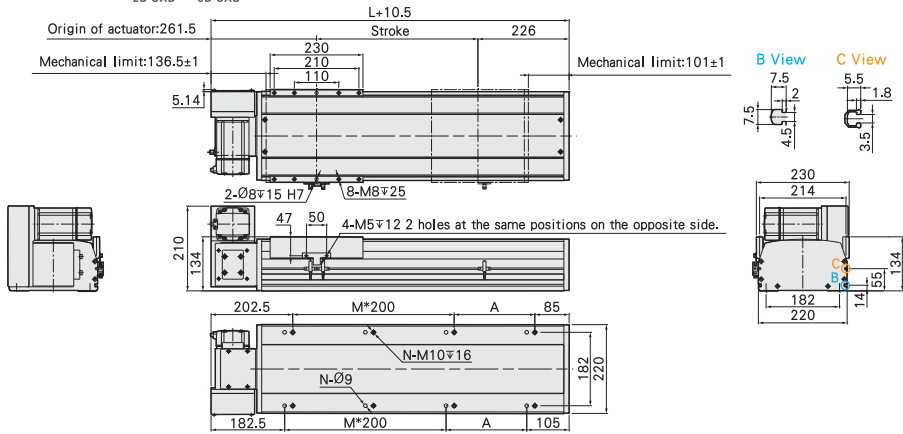
LU

Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	57.6	58.8	60	61.2	62.4	63.6	64.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	16
N	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	36
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8

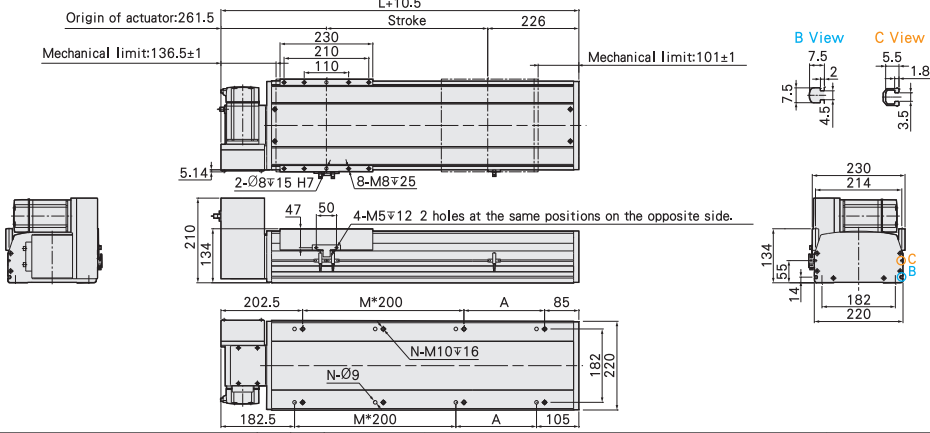
RU

Motor Right Upper Side



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Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	57.6	58.8	60	61.2	62.4	63.6	64.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	16
N	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	36
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8

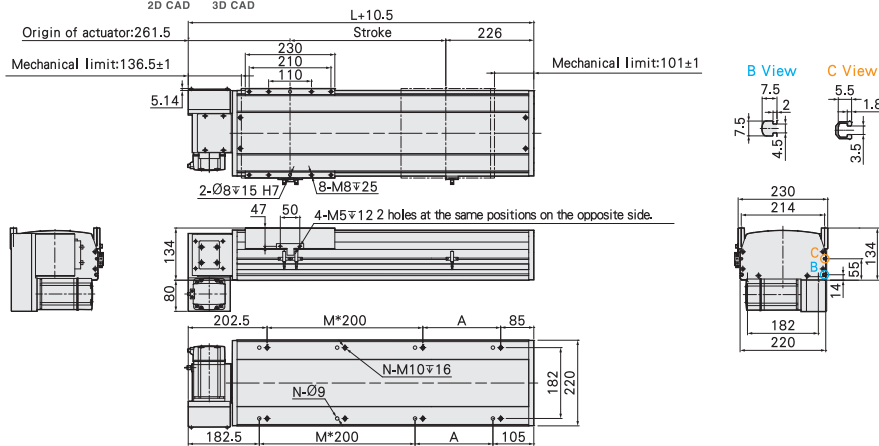
## Motor Left Lower Side / Motor Right Lower Side

### LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	8
N	6	6	6	6	8	8	8	8	8	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	59.2	59.8	60	61.2	62.4	63.6	64.8

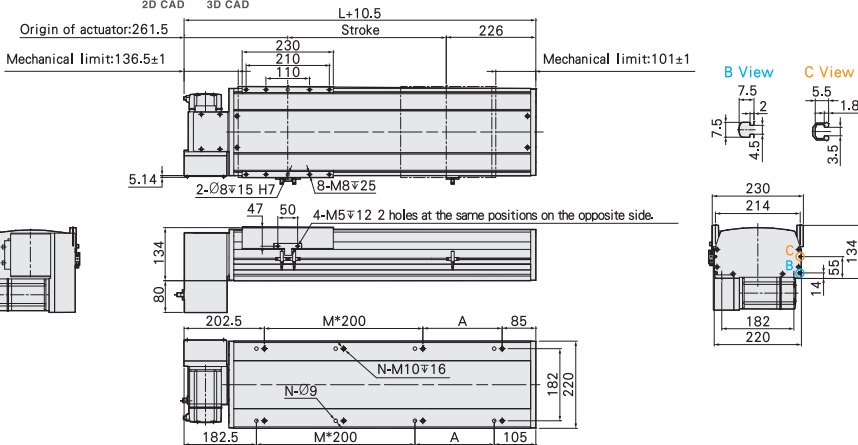
Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8	

### RD Motor Right Upper Side



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Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627	1677	1727	1777	1827	1877	1927	1977	2027
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	8
N	6	6	6	6	8	8	8	8	8	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20
KG	28.8	30	31.2	32.4	33.6	34.8	36	37.2	38.4	39.6	40.8	42	43.2	44.4	45.6	46.8	48	49.2	50.4	51.6	52.8	54	55.2	56.4	59.2	59.8	60	61.2	62.4	63.6	64.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	
L	2077	2127	2177	2227	2277	2327	2377	2427	2477	2527	2577	2627	2677	2727	2777	2827	2877	2927	2977	3027	3077	3127	3177	3227	3277	3327	3377	3427	3477	3527	
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	
M	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16
N	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36
KG	66	67.2	68.4	69.6	70.8	72	73.2	74.4	75.6	76.8	78	79.2	80.4	81.6	82.8	84	85.2	86.4	87.6	88.8	90	91.2	92.4	93.6	94.8	96	97.2	98.4	99.6	100.8	

Structure	Built-in Guideway Ball Screw Type GTH / GTY	Ball Screw Type ETH	Belt Type ETB / M	Clean Room Ball Screw Type ECH	Clean Room Belt Type ECB	Reference
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**MEMO**

1 axis <b>ETB</b>
ETB10
ETB14M
ETB17M
ETB22M

MEMO

# Electric Actuator M Series

## Standard/Belt Type (Europe Type)



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTYBall Screw Type  
ETHBelt Type  
ETB / MClean Room  
Ball Screw Type  
ECHClean Room  
Belt Type  
ECB

Reference

## CONTENTS

### Standard/Belt Type

#### SMALL

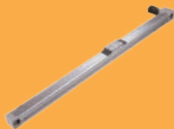
MH65



Width 65mm  
Max. stroke 3000mm .....293  
Max. payload 15kg

#### MEDIUM

MH80



Width 80mm  
Max. stroke 3000mm .....297  
Max. payload 25kg

#### SMALL

MK65



Width 65mm  
Max. stroke 5000mm .....301  
Max. payload 60kg

#### MEDIUM

MK85



Width 85mm  
Max. stroke 5000mm .....309  
Max. payload 100kg

#### LARGE

MK110



Width 110mm  
Max. stroke 4800mm .....317  
Max. payload 200kg

# Spec Index - Europe Type Belt Actuator

Use Where	Driven Mode	Model Spec.	Gearbox	Motor Output (w)	Width (mm)	Repeatability (mm)	Belt Spec		Maximum Payload (kg)		Maximum Speed (mm/s) <sup>*1</sup>
							Belt Width (mm)	Lead (mm)	Horizontal	Vertical	
Standard Environment	Timing Belt	MH65	No	400W	65	±0.1	20	78	15		2600
		MH80		750W	80	±0.1	30	102	25		2550
		MK65	Yes	400W	65	±0.1	32	110 <sup>*3</sup>	60	17	1833 <sup>*3</sup>
		MK85		750W	85	±0.1	46	200 <sup>*3</sup>	100	24	2000 <sup>*3</sup>
		MK110		750W	110	±0.1	50	250 <sup>*3</sup>	200	50	1250 <sup>*3</sup>

\*1 The highest speed is based on the servo motor's maximum RPM of 3,000.

\*3 Lead \ the maximum speed depends on different gear ratio.



Stroke(mm) & Maximum Speed(mm/s) <span style="background-color: #ffffcc;"> </span> Speed																											Page		
Stroke	100	700	900	1100	1300	1500	1700	1900	2100	2300	2500	2700	3000	3100	3300	3500	3700	3900	4100	4300	4500	4800	5000	5100	5300	5500	5700		
																												293	
																													297
																													301
																													309
																													317

Structure	Bullin Guideway Ball Screw Type GTH / GTY
Ball Screw Type	ETH
Belt Type	ETB / M
Clean Room Ball Screw Type	ECH
Clean Room Belt Type	ECB
Reference	

# MH65

1-axis

▶ Belt Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **3000mm**

Maximum Speed **2600mm/s**

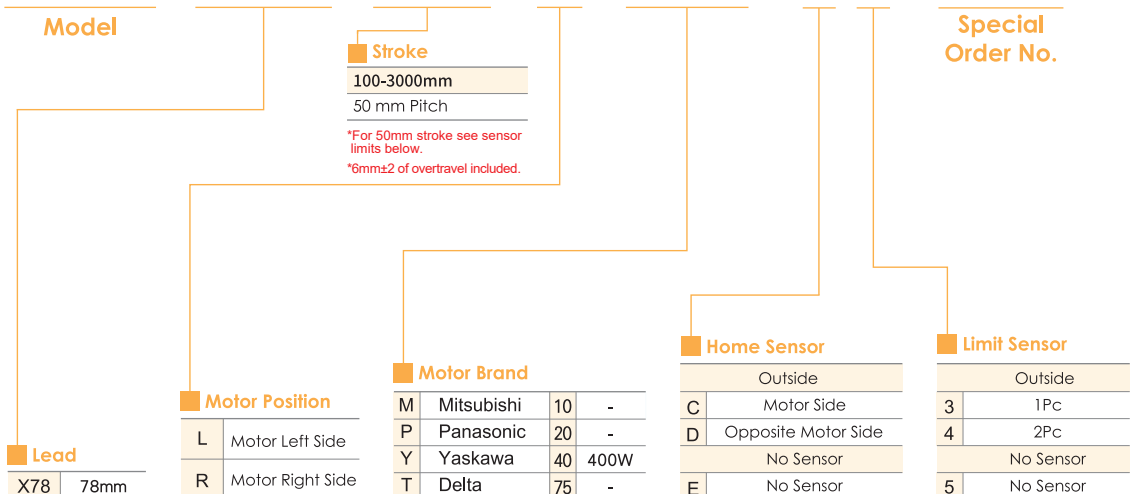
Motor Output **400W**

Belt Width **20 mm**

Linear Guide **12X7.5-1pc**

## Ordering Method

# MH65 - X 78 - 2000 - L - M 40 - C 4 - 0001





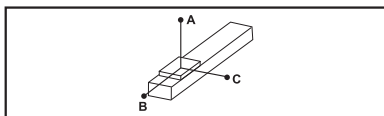
**Specifications**

Actuator Specs	Belt Lead (mm)		78				
	Maximum Speed (mm/s)		650	1300	1950	2600	
	Max payload	Horizontal (kg)	15	10	7	6	
		Vertical (kg)	-	-	-	-	
	Rated Thrust (N)		92				
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	336	277	235	224
			2540 km of travel	91	75	64	61
		Static Horizontal (kg)	706				
	Repeatability (mm)		±0.1				
	Allowable Input Torque (rpm)		500	1000	1500	2000	
	Lost Motion (mm)		0.15				
	Allowable Input Torque (N.m)		4.5				
	Maximum Acceleration (in/sec)		5				
	Friction Coefficient		<0.01				
Stroke Pitch (mm)		100-3000mm / 50mm Pitch					

Parts Specs	Belt Lead (mm)		78	
	Belt	Standard tension value Tis (N)	98	
		Maximum value of allowed tension Timax (N)	195	
	Linear Guide	Basic dynamic load rating C (KG)	471	
		Basic static load rating Co (KG)	706	
	Fixed Bearing	Basic dynamic load rating Cor (N)	10000	
		Basic static load rating Cr (N)	18800	
	AC Servo Motor Output (W)		400	
	Belt Width (mm)		20	
	High Rigidity Linear Guide (mm)		W12XH7.5	
	Home Sensor	Outside	EE-SX672(NPN)	

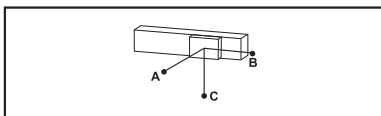
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

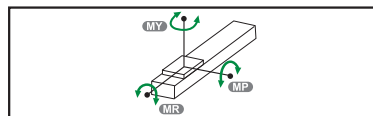
Horizontal Installation	Speed Maximum	A	B	C
6kg	2600mm/s	170	58	15
7kg	1950mm/s	192	48	12
10kg	1300mm/s	240	47	12
15kg	650mm/s	240	42	12



(Unit : mm)

Wall Installation	Speed Maximum	A	B	C
6kg	2600mm/s	15	58	170
7kg	1950mm/s	12	48	192
10kg	1300mm/s	12	47	240
15kg	650mm/s	12	42	240

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	44
<b>MP</b>	44
<b>MR</b>	12

- \*The torque value in the chart indicates the center of gravity.
- \*The operational life of this product is 10,000km when used under the above specified conditions.
- \*The steel stripe cover may be deformed when the length of the actuator is over 1000mm. Horizontal application is recommended.
- \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Numbers of Fixing Screws**

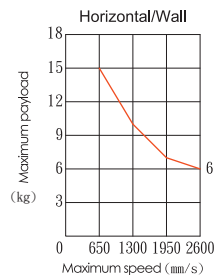
M5 nuts Qty. (by stroke)					
Stroke	100-950	1000-1450	1500-1950	2000-2450	2500-3000
Quantity	6	8	10	12	14

\*This device is typically mounted from the bottom using the M5 bolt and nut.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MBDHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B

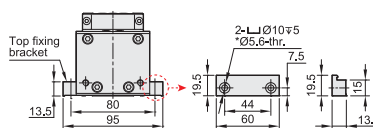
**Acceleration-Payload Relationship**



\*Please refer to the moment diagram below (does not reach all maximum values at the same time)

\*The steel stripe cover may be deformed when the actuator length is over 1000mm. Horizontal application is recommended.

**Installation Instructions & Dimensions**



\*Top fixing plate is optional.

## Motor Left Side / Motor Right Side

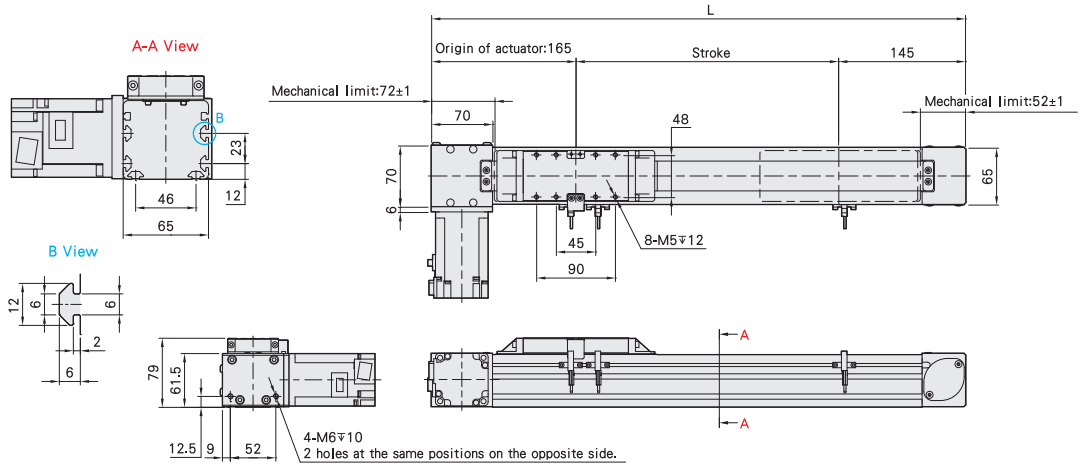
L

Motor Left Side



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Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810
KG	3.13	3.81	4.49	5.17	5.85	6.53	7.21	7.89	8.57	9.25	9.93	10.61	11.29	11.97	12.65

Stroke	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
L	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310
KG	13.33	14.01	14.69	15.37	16.05	16.73	17.41	18.09	18.77	19.45	20.13	20.81	21.49	22.17	22.85

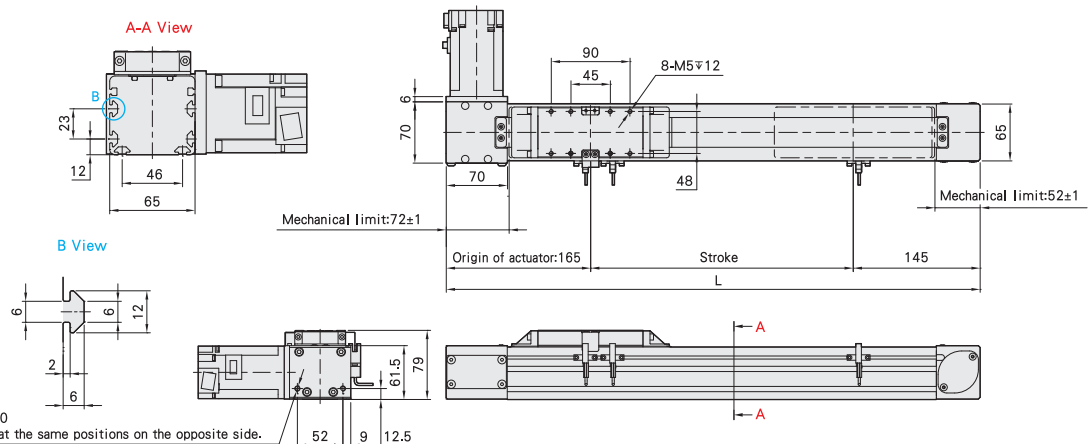
R

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810
KG	3.13	3.81	4.49	5.17	5.85	6.53	7.21	7.89	8.57	9.25	9.93	10.61	11.29	11.97	12.65

Stroke	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
L	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310
KG	13.33	14.01	14.69	15.37	16.05	16.73	17.41	18.09	18.77	19.45	20.13	20.81	21.49	22.17	22.85

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**M**

MH65

MH80

MK65

MK85

MK110



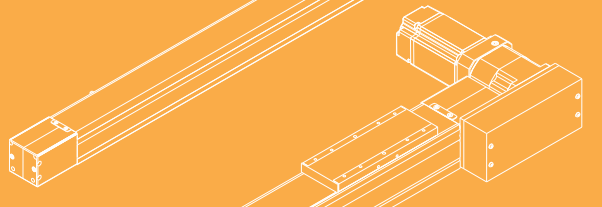
The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke <b>3000mm</b>	Maximum Speed <b>2550mm/s</b>	Motor Output <b>750W</b>	Belt Width <b>30 mm</b>	Linear Guide <b>15X9,5- 1pc</b>
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### Ordering Method

## MH80 - X 102 - 2000 - L - M 75 - C 4 - 0001

<p><b>Model</b></p>	<p><b>Stroke</b></p> <table border="1"> <tr><td>100-3000mm</td></tr> <tr><td>50 mm Pitch</td></tr> </table> <p><small>*For 50mm stroke see sensor limits below. *14mm±2 of overtravel included.</small></p>	100-3000mm	50 mm Pitch	<p><b>Special Order No.</b></p>																				
100-3000mm																								
50 mm Pitch																								
<p><b>Lead</b></p> <table border="1"> <tr><td>X102</td><td>102mm</td></tr> </table>	X102	102mm	<p><b>Motor Position</b></p> <table border="1"> <tr><td>L</td><td>Motor Left Side</td></tr> <tr><td>R</td><td>Motor Right Side</td></tr> </table>	L	Motor Left Side	R	Motor Right Side	<p><b>Motor Brand</b></p> <table border="1"> <tr><td>M</td><td>Mitsubishi</td><td>10</td><td>-</td></tr> <tr><td>P</td><td>Panasonic</td><td>20</td><td>-</td></tr> <tr><td>Y</td><td>Yaskawa</td><td>40</td><td>-</td></tr> <tr><td>T</td><td>Delta</td><td>75</td><td>750W</td></tr> </table>	M	Mitsubishi	10	-	P	Panasonic	20	-	Y	Yaskawa	40	-	T	Delta	75	750W
X102	102mm																							
L	Motor Left Side																							
R	Motor Right Side																							
M	Mitsubishi	10	-																					
P	Panasonic	20	-																					
Y	Yaskawa	40	-																					
T	Delta	75	750W																					
		<p><b>Home Sensor</b></p> <table border="1"> <tr><td></td><td>Outside</td></tr> <tr><td>C</td><td>Motor Side</td></tr> <tr><td>D</td><td>Opposite Motor Side</td></tr> <tr><td></td><td>No Sensor</td></tr> <tr><td>E</td><td>No Sensor</td></tr> </table>		Outside	C	Motor Side	D	Opposite Motor Side		No Sensor	E	No Sensor	<p><b>Limit Sensor</b></p> <table border="1"> <tr><td></td><td>Outside</td></tr> <tr><td>3</td><td>1Pc</td></tr> <tr><td>4</td><td>2Pc</td></tr> <tr><td></td><td>No Sensor</td></tr> <tr><td>5</td><td>No Sensor</td></tr> </table>		Outside	3	1Pc	4	2Pc		No Sensor	5	No Sensor	
	Outside																							
C	Motor Side																							
D	Opposite Motor Side																							
	No Sensor																							
E	No Sensor																							
	Outside																							
3	1Pc																							
4	2Pc																							
	No Sensor																							
5	No Sensor																							



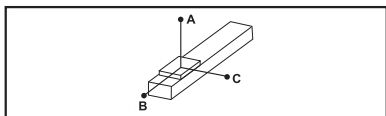
**Specifications**

Actuator Specs	Belt Lead (mm)		102			
	Maximum Speed (mm/s)		850	1700	2550	
	Max payload	Horizontal (kg)	25	16	13	
		Vertical (kg)	-	-	-	
	Rated Thrust (N)		132			
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	536	432	370
			2540 km of travel	145	117	100
		Static Horizontal (kg)	1140			
	Repeatability (mm)		±0.1			
	Allowable Input Torque (rpm)		500	1000	1500	
	Lost Motion (mm)		0.15			
	Allowable Input Torque (N.m)		8.4			
	Maximum Acceleration (in/sec)		5			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		100-3000mm / 50mm Pitch				

Parts Specs	Belt Lead (mm)		102	
	Belt	Standard tension value Tis (N)	147	
		Maximum value of allowed tension Timax (N)	261	
	Linear Guide	Basic dynamic load rating C (KG)	777	
		Basic static load rating Co (KG)	1140	
	Fixed Bearing	Basic dynamic load rating Cor (N)	11700	
		Basic static load rating Cr (N)	20200	
	AC Servo Motor Output (W)		750	
	Belt Width (mm)		30	
	High Rigidity Linear Guide (mm)		W15XH9.5	
	Home Sensor	Outside	EE-SX672(NPN)	

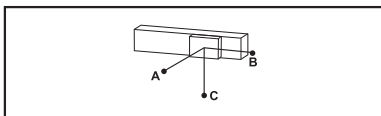
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

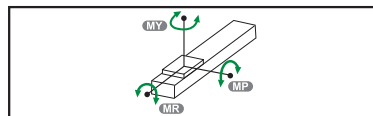
Horizontal Installation	Speed Maximum	A	B	C
13kg	2550mm/s	144	46	12
16kg	1700mm/s	195	41	12
25kg	850mm/s	240	43	12



(Unit : mm)

Wall Installation	Speed Maximum	A	B	C
13kg	2550mm/s	12	46	144
16kg	1700mm/s	12	41	195
25kg	850mm/s	12	43	240

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	82
<b>MP</b>	82
<b>MR</b>	24

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*The steel stripe cover may be deformed when the length of the actuator is over 1000mm. Horizontal application is recommended.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Numbers of Fixing Screws**

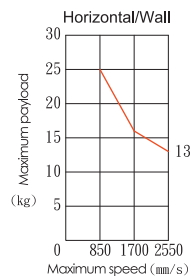
M5 nuts Qty.(by stroke)					
Stroke	100-950	1000-1450	1500~1950	2000~2450	2500~3000
Quantity	6	8	10	12	14

\*This device is typically mounted from the bottom using the M5 bolt and nut.

**Suitable Motor Brands**

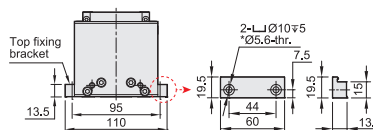
Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MBDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B

**Acceleration-Payload Relationship**



\*Please refer to the moment diagram below (does not reach all maximum values at the same time)  
 \*The steel stripe cover may be deformed when the actuator length is over 1000mm. Horizontal application is recommend.

**Installation Instructions & Dimensions**



\*Top fixing plate is optional.

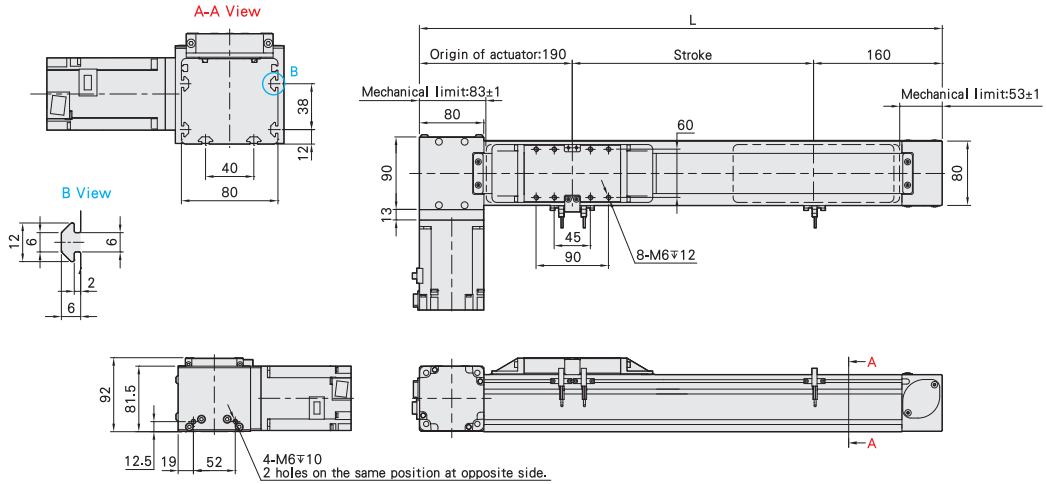
## Motor Left Side / Motor Right Side

Unit: mm

### L Motor Left Side



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Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850
KG	4.81	5.65	6.49	7.33	8.17	9.01	9.85	10.69	11.53	12.37	13.21	14.05	14.89	15.73	16.57

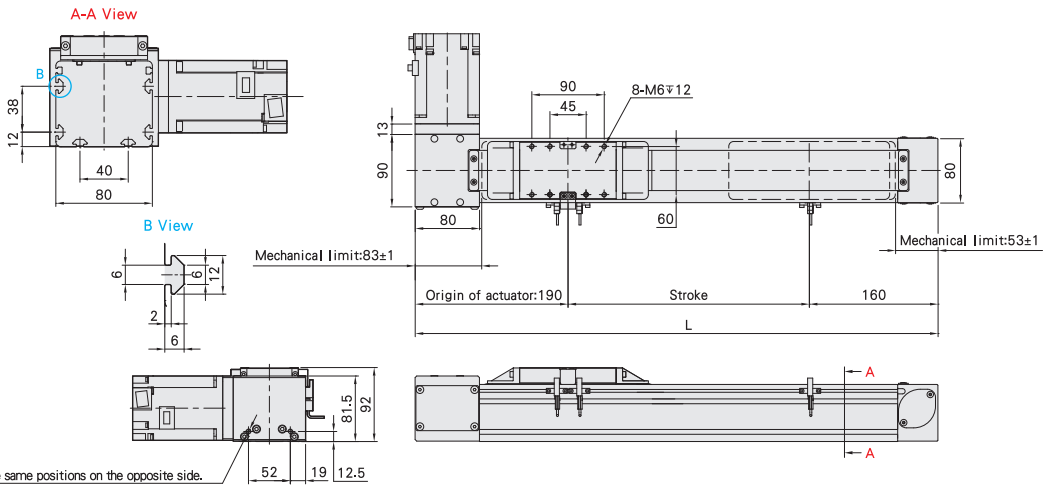
Stroke	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
L	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350
KG	17.41	18.25	19.09	19.93	20.77	21.60	22.45	23.29	24.13	24.97	25.81	26.65	27.49	28.33	29.17

### R Motor Right Side



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Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850
KG	4.81	5.65	6.49	7.33	8.17	9.01	9.85	10.69	11.53	12.37	13.21	14.05	14.89	15.73	16.57

Stroke	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
L	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350
KG	17.41	18.25	19.09	19.93	20.77	21.60	22.45	23.29	24.13	24.97	25.81	26.65	27.49	28.33	29.17



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**M**

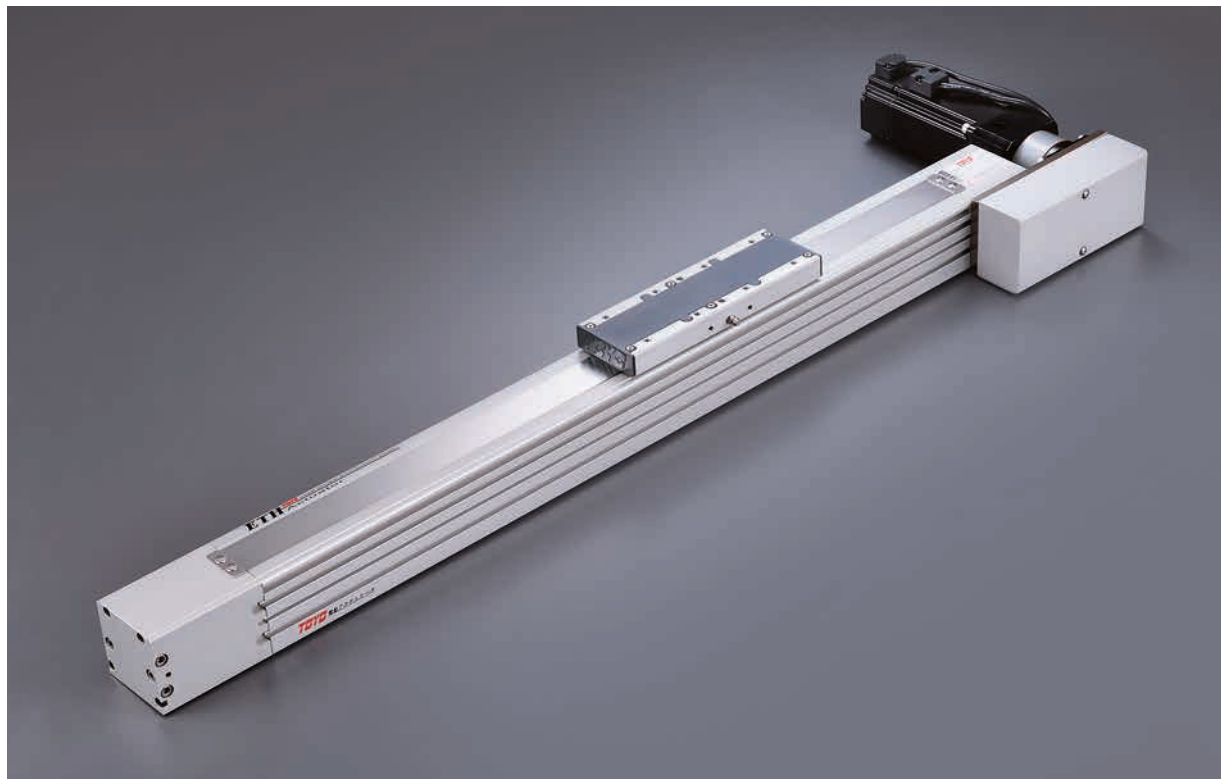
MH65

**MH80**

MK65

MK85

MK110



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **5000mm**

Maximum Speed **1833mm/s**

Motor Output **400W**

Belt Width **32 mm**

Linear Guide **15X12,5-1pc**

\*The maximum speed depends on the gear ratio.

## Ordering Method

# MK65 - 2000 - L - M4B - C 4 - NL - 10 - A001

### Model

#### Stroke

100-5000mm  
100 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*14mm±2 of overtravel included.

### Special Order No.

#### Grease Fitting Position

NL	To The Left of The Slider
NR	To The Right of The Slider

### Motor Position

Gearbox ratio: 3:1/5:1/7:1/10:1

L	Motor Left Side	R	Motor Right Side
LU	Motor Left Upper Side	RU	Motor Right Upper Side
LD	Motor Left Lower Side	RD	Motor Right Lower Side
LT	Reducer With Motor Left Side	RT	Reducer With Motor Right Side
No Gearbox			
LL	Motor Shaft Left Side	RR	Motor Shaft Right Side

### Dimensions

M4	Servo motor: PCD70-M5-shift Φ14mm	B
P4	Servo motor: PCD70-M4-shift Φ14mm	

\*There is no description for models that do not include brakes.

### Home Sensor

	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1Pc
4	2Pc
	No Sensor
5	No Sensor

### Gearbox Ratio

3	3:1
5	5:1
7	7:1
10	10:1
N	No Gearbox

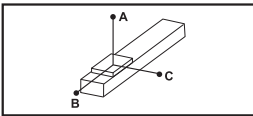
**Specifications**

Actuator Specs	Belt Lead (mm)		3:1	5:1	7:1	10:1	
	Maximum Speed (mm/s)		1833	1100	785	550	
	Max payload	Horizontal (kg)	30	45	55	60	
		Vertical (kg)	9	15	16	17	
	Rated Thrust (N)		220				
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	343	407	465	482
			2540 km of travel	8	9	11	11
		Static Horizontal (kg)	4412				
	Repeatability (mm)		±0.1				
	Allowable Input Torque (rpm)		1000	600	428	300	
	Lost Motion (mm)		0.15				
	Allowable Input Torque (N.m)		13.5	22.5	31.5	45	
	Maximum Acceleration (in/sec)		5				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		100-5000mm / 100mm Pitch					

Parts Specs	Belt Lead (mm)		3:1	5:1	7:1	10:1
	Belt	Standard tension value Tis (N)	222			
		Maximum value of allowed tension Timax (N)	393			
	Linear Guide	Basic dynamic load rating C (KG)	2412			
		Basic static load rating Co (KG)	4412			
	Fixed Bearing	Basic dynamic load rating Cor (N)	7400			
		Basic static load rating Cr (N)	12800			
	AC Servo Motor Output (W)		400			
	Belt Width (mm)		32			
	High Rigidity Linear Guide (mm)		W15XH12.5			
Home Sensor	Outside	EE-SX672(NPN)				

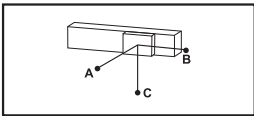
\*Notice, if the belt breaks, the moving parts will fall when the application is vertical.  
 \*Lead is 110mm without gearbox.  
 \*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



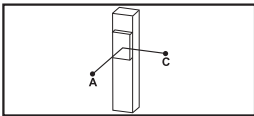
(Unit : mm)

Horizontal Installation	A	B	C	
3:1	10kg	950	250	42
	20kg	420	105	18
	30kg	250	55	10
5:1	25kg	950	140	24
	35kg	625	90	15
	45kg	450	55	10
7:1	28kg	1300	145	25
	40kg	850	90	15
	55kg	550	50	10
10:1	30kg	1850	145	25
	45kg	1250	90	15
	60kg	800	50	10



(Unit : mm)

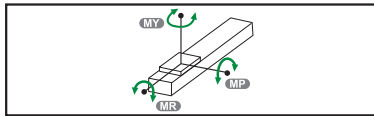
Wall Installation	A	B	C	
3:1	10kg	42	250	950
	20kg	19	110	450
	30kg	10	60	260
5:1	25kg	25	140	950
	35kg	15	90	600
	45kg	10	60	450
7:1	28kg	25	145	1300
	40kg	15	90	850
	55kg	10	60	550
10:1	30kg	25	140	1950
	45kg	15	90	1150
	60kg	10	60	800



(Unit : mm)

Vertical Installation	A	C	
3:1	3kg	900	900
	6kg	450	450
	9kg	300	300
5:1	5kg	900	900
	10kg	450	450
	15kg	300	300
7:1	6kg	900	900
	12kg	450	450
	16kg	300	300
10:1	6kg	900	900
	13kg	450	450
	17kg	330	330

**Static Loading moment**



(Unit : N.m)

MY	338
MP	338
MR	59

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*The steel stripe cover may be deformed when the length of the actuator is over 1000mm. Horizontal application is recommended.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
MY	85
MP	85
MR	15

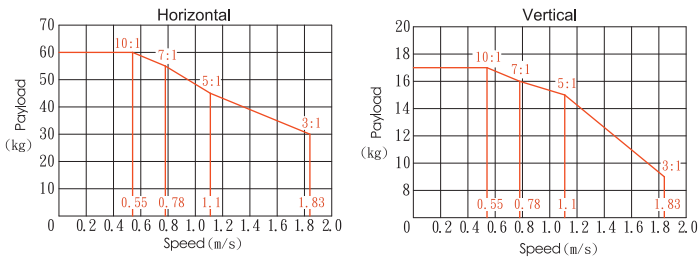
2540 km of travel (Unit : N.m)	
MY	22
MP	22
MR	4

**Numbers of Fixing Screws**

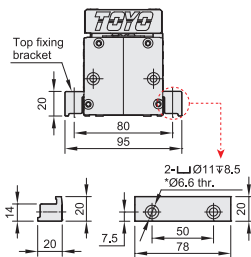
M5 nuts Qty. (by stroke)										
Stroke	100~500	600~1000	1100~1500	1600~2000	2100~2500	2600~3000	3100~3500	3600~4000	4100~4500	4600~5000
Quantity	4	6	8	10	12	14	16	18	20	22

\*This device is typically mounted from the bottom using the M5 bolt and nut.

**Acceleration-Payload Relationship**



**Installation Instructions & Dimensions**

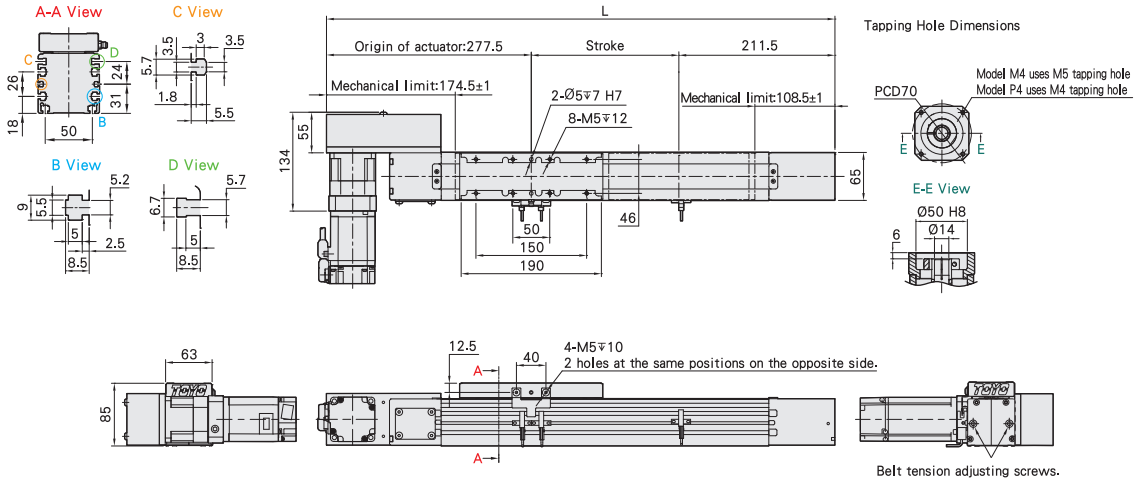


\*Top fixing plate is optional.

## Motor Left Side / Motor Right Side

Unit: mm

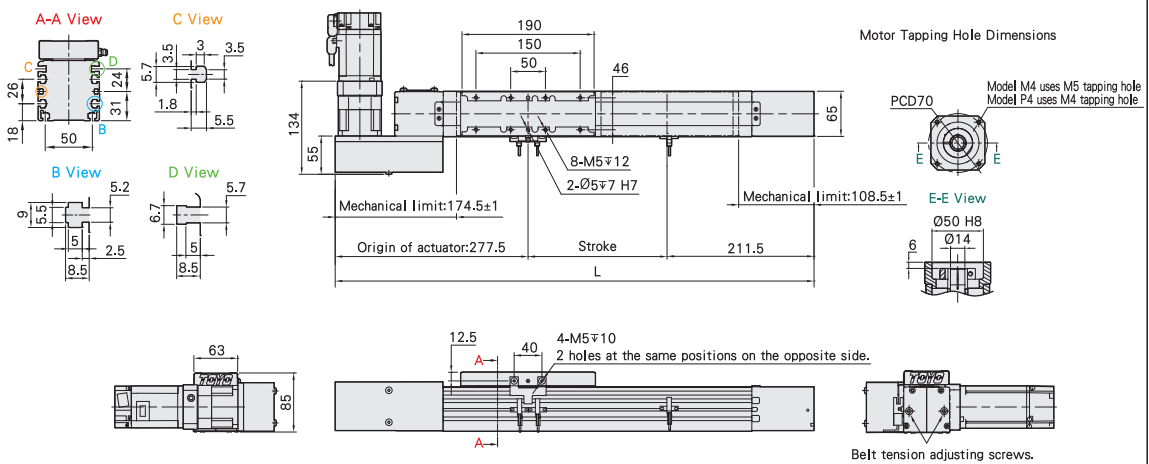
**L Motor Left Side**   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	589	689	789	889	989	1089	1189	1289	1389	1489	1589	1689	1789	1889	1989	2089	2189	2288	2389	2489	2589	2689	2789	2889	2989
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3089	3189	3289	3389	3489	3589	3689	3789	3889	3989	4089	4189	4289	4389	4489	4589	4689	4789	4889	4989	5089	5189	5289	5389	5489
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

**R Motor Right Side**   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	589	689	789	889	989	1089	1189	1289	1389	1489	1589	1689	1789	1889	1989	2089	2189	2288	2389	2489	2589	2689	2789	2889	2989
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3089	3189	3289	3389	3489	3589	3689	3789	3889	3989	4089	4189	4289	4389	4489	4589	4689	4789	4889	4989	5089	5189	5289	5389	5489
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

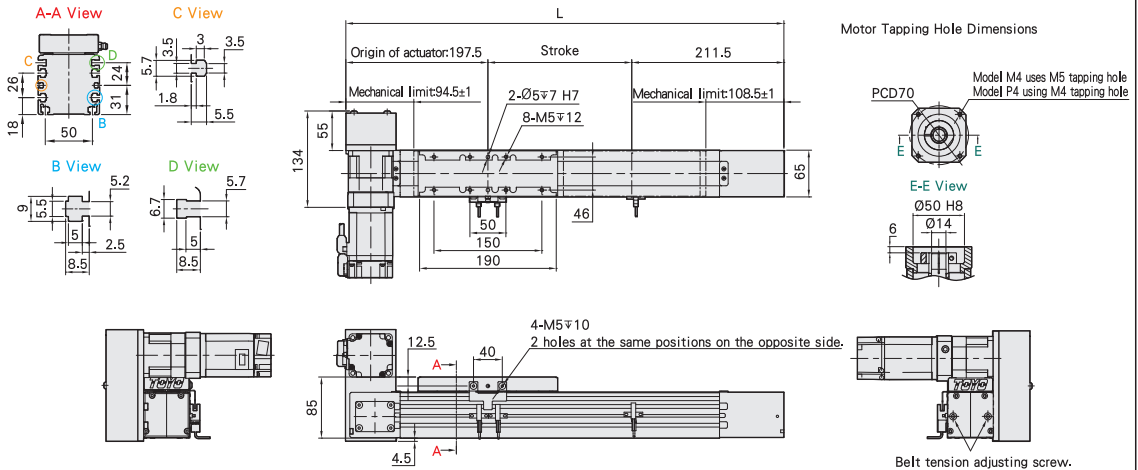
## Motor Left Upper Side / Motor Right Upper Side

### LU Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	509	609	709	809	909	1009	1109	1209	1309	1409	1509	1609	1709	1809	1909	2009	2109	2209	2309	2409	2509	2609	2709	2809	2909
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31

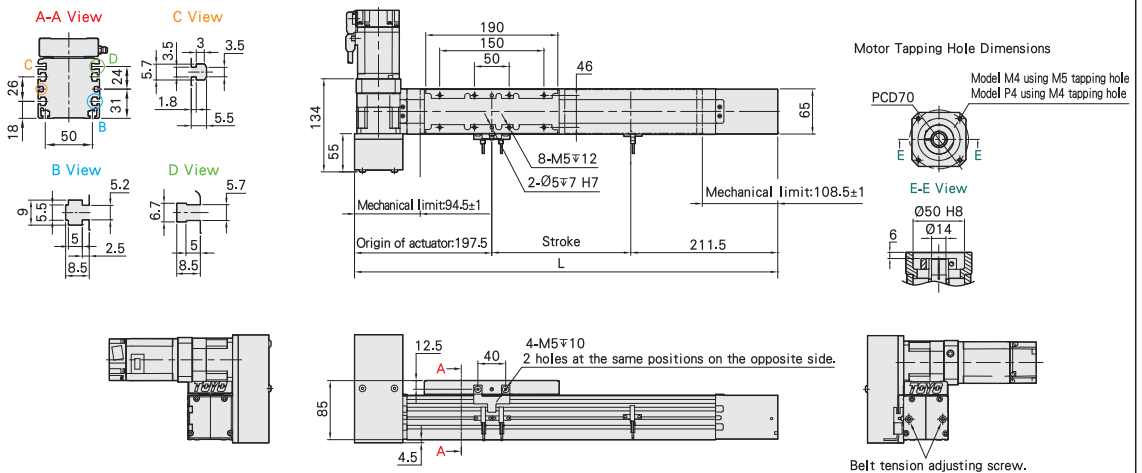
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3009	3109	3209	3309	3409	3509	3609	3709	3809	3909	4009	4109	4209	4309	4409	4509	4609	4709	4809	4909	5009	5109	5209	5309	5409
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

### RU Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	509	609	709	809	909	1009	1109	1209	1309	1409	1509	1609	1709	1809	1909	2009	2109	2209	2309	2409	2509	2609	2709	2809	2909
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31

Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3009	3109	3209	3309	3409	3509	3609	3709	3809	3909	4009	4109	4209	4309	4409	4509	4609	4709	4809	4909	5009	5109	5209	5309	5409
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

1 axis  
M

MH65

MH80

MK65

MK85

MK110

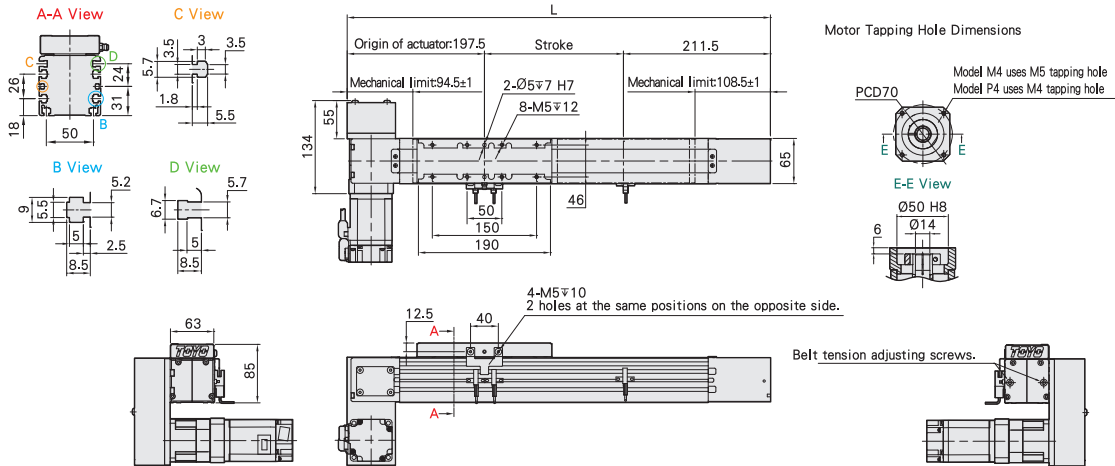
## Motor Left Lower Side / Motor Right Lower Side

Unit: mm

### LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



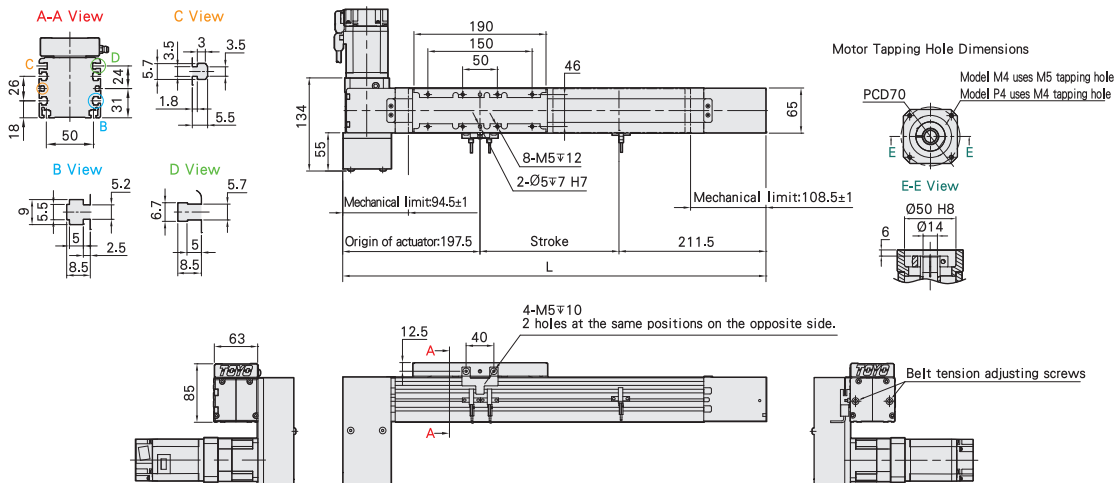
Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	509	609	709	809	909	1009	1109	1209	1309	1409	1509	1609	1709	1809	1909	2009	2109	2209	2309	2409	2509	2609	2709	2809	2909
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3009	3109	3209	3309	3409	3509	3609	3709	3809	3909	4009	4109	4209	4309	4409	4509	4609	4709	4809	4909	5009	5109	5209	5309	5409
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

### RD Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	509	609	709	809	909	1009	1109	1209	1309	1409	1509	1609	1709	1809	1909	2009	2109	2209	2309	2409	2509	2609	2709	2809	2909
KG	7.87	8.43	8.99	9.55	10.11	10.67	11.23	11.79	12.35	12.91	13.47	14.03	14.59	15.15	15.71	16.27	16.83	17.39	17.95	18.51	19.07	19.63	20.19	20.75	21.31
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3009	3109	3209	3309	3409	3509	3609	3709	3809	3909	4009	4109	4209	4309	4409	4509	4609	4709	4809	4909	5009	5109	5209	5309	5409
KG	21.87	22.43	22.99	23.55	24.11	24.67	25.23	25.79	26.35	26.91	27.47	28.03	28.59	29.15	29.71	30.27	30.83	31.39	31.95	32.51	33.07	33.63	34.19	34.75	35.31

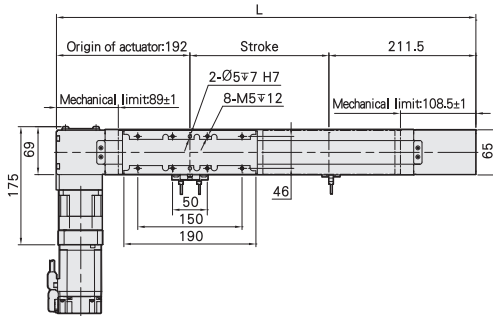
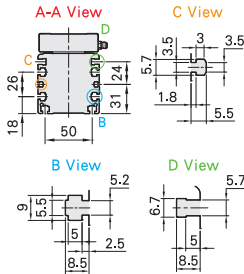
**Reducer With Motor Left Side / Reducer With Motor Right Side**

**LT Reducer With Motor Left Side**

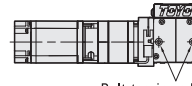
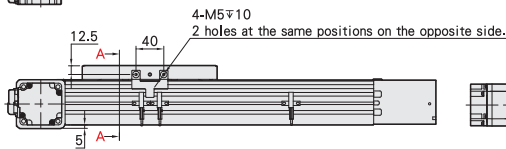
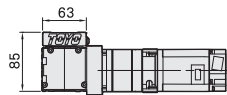
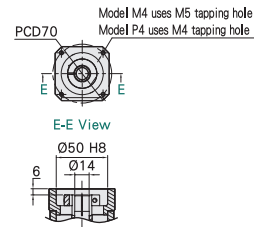


Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Motor Tapping Hole Dimensions



Belt tension adjusting screws.

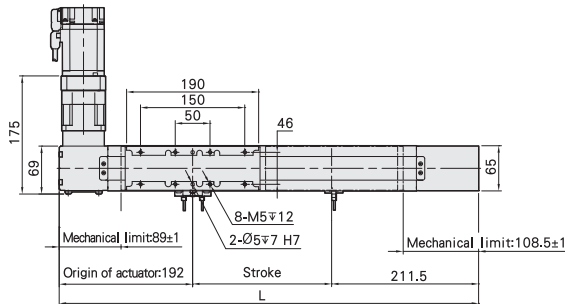
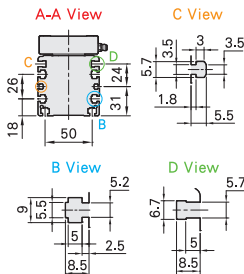
Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	503.5	603.5	703.5	803.5	903.5	1003.5	1103.5	1203.5	1303.5	1403.5	1503.5	1603.5	1703.5	1803.5	1903.5	2003.5	2103.5	2203.5	2303.5	2403.5	2503.5	2603.5	2703.5	2803.5	2903.5
KG	6.87	7.39	7.91	8.43	8.95	9.47	9.99	10.51	11.03	11.55	12.07	12.59	13.11	13.63	14.15	14.67	15.19	15.71	16.23	16.75	17.27	17.79	18.31	18.83	19.35
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3003.5	3103.5	3203.5	3303.5	3403.5	3503.5	3603.5	3703.5	3803.5	3903.5	4003.5	4103.5	4203.5	4303.5	4403.5	4503.5	4603.5	4703.5	4803.5	4903.5	5003.5	5103.5	5203.5	5303.5	5403.5
KG	19.87	20.39	20.91	21.43	21.95	22.47	22.99	23.51	24.03	24.55	25.07	25.59	26.11	26.63	27.15	27.67	28.19	28.71	29.23	29.75	30.27	30.79	31.31	31.83	32.35

**RT Reducer With Motor Right Side**

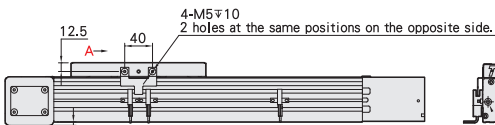
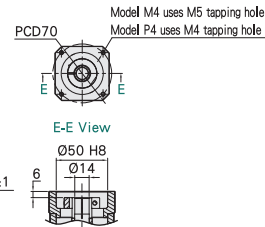


Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Motor Tapping Hole Dimensions



Belt tension adjusting screws.

Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	503.5	603.5	703.5	803.5	903.5	1003.5	1103.5	1203.5	1303.5	1403.5	1503.5	1603.5	1703.5	1803.5	1903.5	2003.5	2103.5	2203.5	2303.5	2403.5	2503.5	2603.5	2703.5	2803.5	2903.5
KG	6.87	7.39	7.91	8.43	8.95	9.47	9.99	10.51	11.03	11.55	12.07	12.59	13.11	13.63	14.15	14.67	15.19	15.71	16.23	16.75	17.27	17.79	18.31	18.83	19.35
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3003.5	3103.5	3203.5	3303.5	3403.5	3503.5	3603.5	3703.5	3803.5	3903.5	4003.5	4103.5	4203.5	4303.5	4403.5	4503.5	4603.5	4703.5	4803.5	4903.5	5003.5	5103.5	5203.5	5303.5	5403.5
KG	19.87	20.39	20.91	21.43	21.95	22.47	22.99	23.51	24.03	24.55	25.07	25.59	26.11	26.63	27.15	27.67	28.19	28.71	29.23	29.75	30.27	30.79	31.31	31.83	32.35

1 axis  
**M**

MH65

MH80

MK65

MK85

MK110

### Motor Shaft Left Side / Motor Shaft Right Side

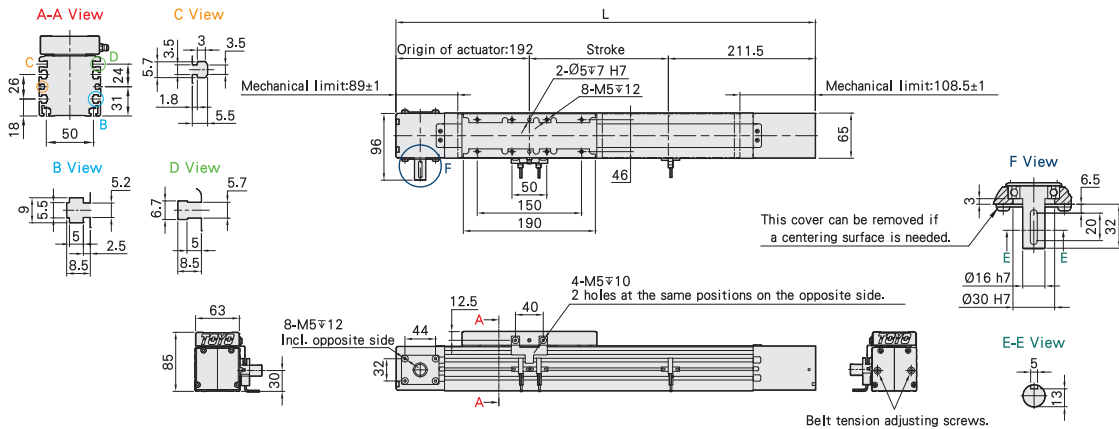
LL

Motor Shaft Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	503.5	603.5	703.5	803.5	903.5	1003.5	1103.5	1203.5	1303.5	1403.5	1503.5	1603.5	1703.5	1803.5	1903.5	2003.5	2103.5	2203.5	2303.5	2403.5	2503.5	2603.5	2703.5	2803.5	2903.5
KG	4.36	4.9	5.44	5.98	6.52	7.06	7.6	8.14	8.68	9.22	9.76	10.3	10.84	11.38	11.92	12.46	13	13.54	14.08	14.62	15.16	15.7	16.24	16.78	17.32
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3003.5	3103.5	3203.5	3303.5	3403.5	3503.5	3603.5	3703.5	3803.5	3903.5	4003.5	4103.5	4203.5	4303.5	4403.5	4503.5	4603.5	4703.5	4803.5	4903.5	5003.5	5103.5	5203.5	5303.5	5403.5
KG	17.86	18.4	18.94	19.48	20.02	20.56	21.1	21.64	22.18	22.72	23.26	23.8	24.34	24.88	25.42	25.96	26.5	27.04	27.58	28.12	28.66	29.2	29.74	30.28	30.82

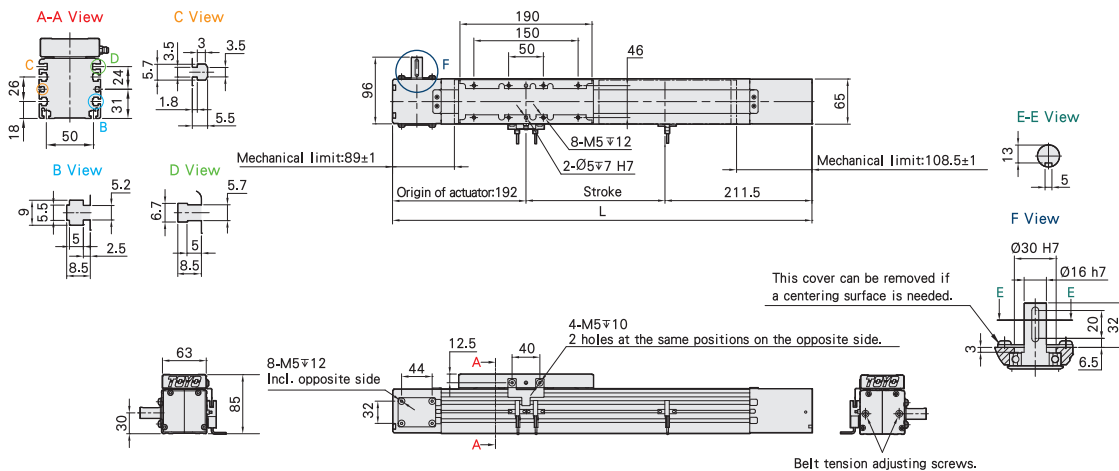
RR

Motor Shaft Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	503.5	603.5	703.5	803.5	903.5	1003.5	1103.5	1203.5	1303.5	1403.5	1503.5	1603.5	1703.5	1803.5	1903.5	2003.5	2103.5	2203.5	2303.5	2403.5	2503.5	2603.5	2703.5	2803.5	2903.5
KG	4.36	4.9	5.44	5.98	6.52	7.06	7.6	8.14	8.68	9.22	9.76	10.3	10.84	11.38	11.92	12.46	13	13.54	14.08	14.62	15.16	15.7	16.24	16.78	17.32
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3003.5	3103.5	3203.5	3303.5	3403.5	3503.5	3603.5	3703.5	3803.5	3903.5	4003.5	4103.5	4203.5	4303.5	4403.5	4503.5	4603.5	4703.5	4803.5	4903.5	5003.5	5103.5	5203.5	5303.5	5403.5
KG	17.86	18.4	18.94	19.48	20.02	20.56	21.1	21.64	22.18	22.72	23.26	23.8	24.34	24.88	25.42	25.96	26.5	27.04	27.58	28.12	28.66	29.2	29.74	30.28	30.82

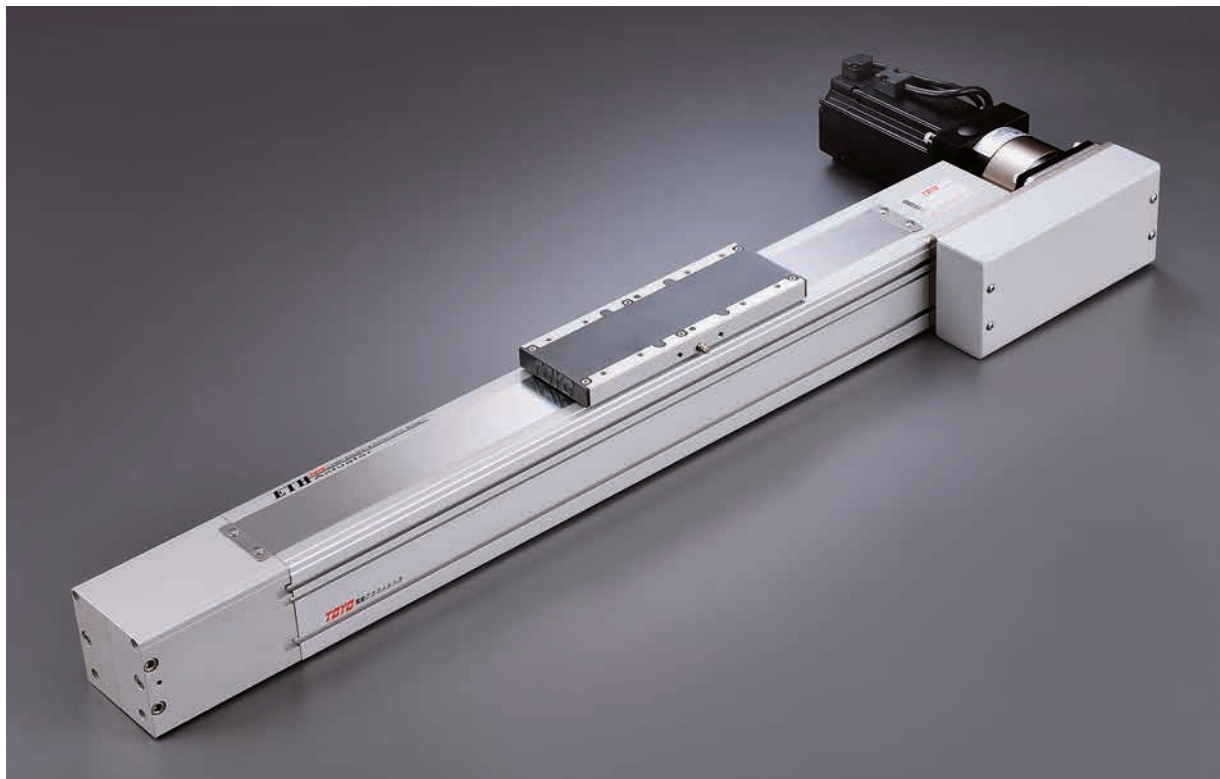


**MEMO**

Large empty rectangular area for notes.

Structure	Built-in Guideway Ball Screw Type GTH / GTY	Ball Screw Type ETH	Belt Type ETB / M	Clean Room Ball Screw Type ECH	Clean Room Belt Type ECB	Reference
-----------	---	------------------------	----------------------	--------------------------------------	--------------------------------	-----------

1 axis <b>M</b>
MH65
MH80
<b>MK65</b>
MK85
MK110



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **5000mm**

Maximum Speed **2000mm/s**

Motor Output **750W**

Belt Width **46 mm**

Linear Guide **20X15-1pc**

\*The maximum speed depends on the gear ratio.

## Ordering Method

# MK85 - 2000 - L - M7B - C 4 - NL - 10 - A001

### Model

#### Stroke

100-5000mm  
100 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*14mm±2 of overtravel included.

### Special Order No.

#### Grease Fitting Position

NL	To The Left of The Slider
NR	To The Right of The Slider

### Motor Position

Gearbox ratio: 3:1/5:1/7:1/10:1

L	Motor Left Side	R	Motor Right Side
LU	Motor Left Upper Side	RU	Motor Right Upper Side
LD	Motor Left Lower Side	RD	Motor Right Lower Side
LT	Reducer With Motor Left Side	RT	Reducer With Motor Right Side
No Gearbox			
LL	Motor Shaft Left Side	RR	Motor Shaft Right Side

### Dimensions

M7	Servo motor: PCD90-M6-shift Φ19mm	B
P7	Servo motor: PCD90-M5-shift Φ19mm	

\*There is no description for models that do not include brakes.

### Home Sensor

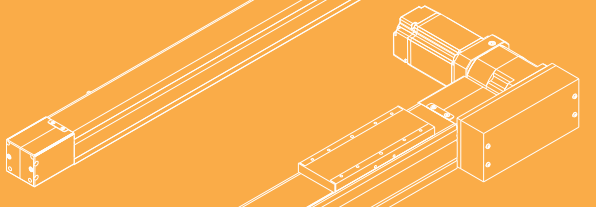
	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

### Limit Sensor

	Outside
3	1Pc
4	2Pc
	No Sensor
5	No Sensor

### Gearbox Ratio

5	5:1
7	7:1
10	10:1
N	No Gearbox



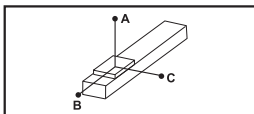
**Specifications**

Actuator Specs	Belt Lead (mm)		5:1	7:1	10:1	
	Maximum Speed (mm/s)		2000	1428	1000	
	Max payload	Horizontal (kg) <small>(Note2)</small>	40	60	100	
		Vertical (kg)	14	21	24	
	Rated Thrust (N)		340			
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1896	2167	2528
			2540 km of travel	512	585	683
		Static Horizontal (kg)	6614			
	Repeatability (mm)		±0.1			
	Allowable Input Torque (rpm)		600	428	300	
	Lost Motion (mm)		0.15			
	Allowable Input Torque (N.m)		42	58.8	84	
	Maximum Acceleration (in/sec)		5			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		100-5000mm / 100mm Pitch				

Parts Specs	Belt Lead (mm)		5:1	7:1	10:1
	Belt	Standard tension value Tis (N)	372		
		Maximum value of allowed tension Timax (N)	647		
	Linear Guide	Basic dynamic load rating C (KG)	3792		
		Basic static load rating Co (KG)	6614		
	Fixed Bearing	Basic dynamic load rating Cor (N)	9100		
		Basic static load rating Cr (N)	14100		
	AC Servo Motor Output (W)		750		
	Belt Width (mm)		46		
	High Rigidity Linear Guide (mm)		W20XH15		
	Home Sensor	Outside	EE-SX672(NPN)		

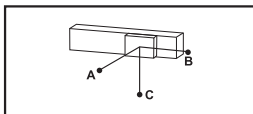
\*Notice, if the belt breaks, the moving parts will fall when the application is vertical.  
 \*Lead is 200mm without gearbox.  
 \*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



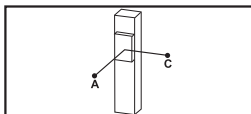
(Unit : mm)

Horizontal Installation		A	B	C
		5:1	20kg	900
5:1	30kg	550	160	22
	40kg	400	110	15
	40kg	750	160	22
7:1	50kg	575	115	16
	60kg	420	85	12
	60kg	900	140	20
10:1	80kg	700	105	15
	100kg	550	75	10



(Unit : mm)

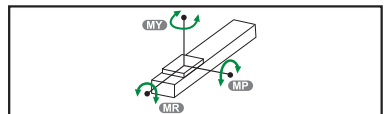
Wall Installation		A	B	C
		5:1	20kg	40
5:1	30kg	22	160	600
	40kg	15	110	400
	40kg	22	160	750
7:1	50kg	15	110	575
	60kg	12	80	450
	60kg	20	140	950
10:1	80kg	15	105	750
	100kg	10	75	600



(Unit : mm)

Vertical Installation		A	C
		5:1	5kg
5:1	10kg	650	650
	14kg	450	450
	15kg	600	600
7:1	18kg	480	480
	21kg	400	400
	18kg	550	550
10:1	20kg	450	450
	24kg	350	350

**Static Loading moment**



(Unit : N.m)

MY	868
MP	868
MR	123

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*The steel stripe cover may be deformed when the length of the actuator is over 1000mm. Horizontal application is recommended.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

MY	215
MP	215
MR	30

**2540 km of travel** (Unit : N.m)

MY	57
MP	57
MR	8

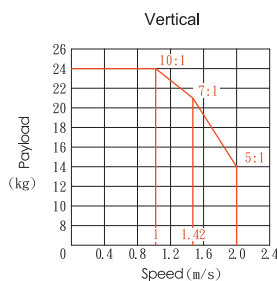
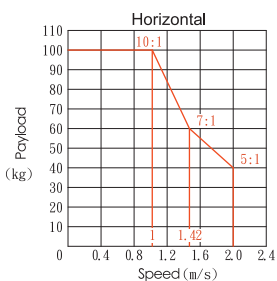
**Numbers of Fixing Screws**

M5 nuts Qty.(by stroke)

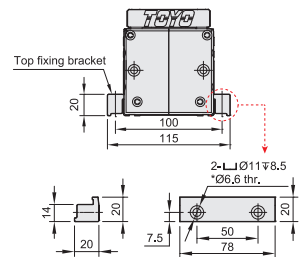
Stroke	100~500	600~1000	1100~1500	1600~2000	2100~2500	2600~3000	3100~3500	3600~4000	4100~4500	4600~5000
Quantity	4	6	8	10	12	14	16	18	20	22

\*This device is typically mounted from the bottom using the M5 bolt and nut.

**Acceleration-Payload Relationship**



**Installation Instructions & Dimensions**



\*Top fixing plate is optional.

### Motor Left Side / Motor Right Side

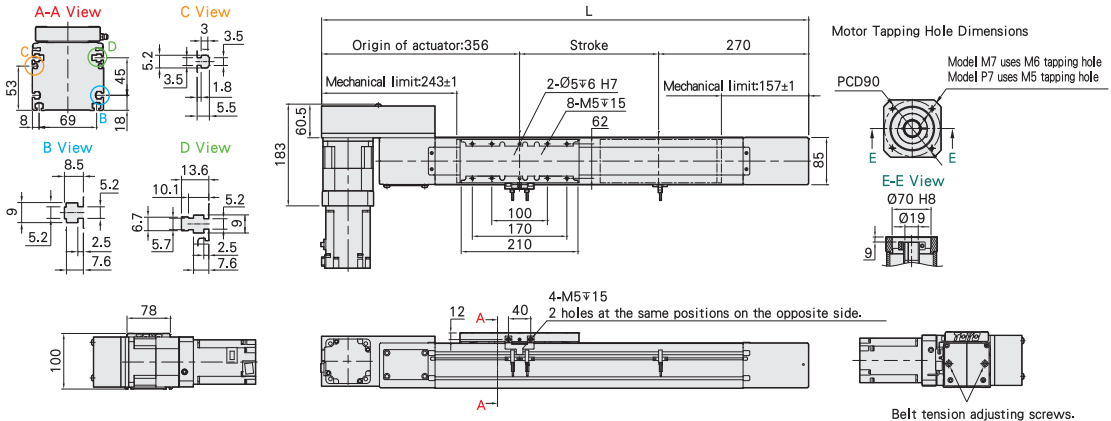
L

#### Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	726	826	926	1026	1126	1226	1326	1426	1526	1626	1726	1826	1926	2026	2126	2226	2626	2426	2526	2626	2726	2826	2926	3026	3126
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3226	3326	3456	3526	3626	3726	3826	3926	4026	4126	4226	4326	4426	4526	4626	4726	4826	4926	5026	5126	5226	5326	5426	5526	5626
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

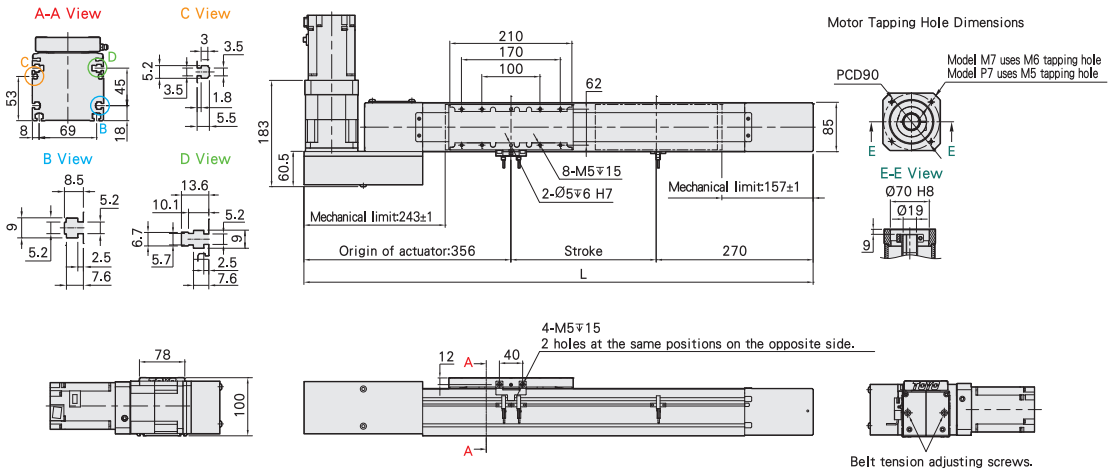
R

#### Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	726	826	926	1026	1126	1226	1326	1426	1526	1626	1726	1826	1926	2026	2126	2226	2626	2426	2526	2626	2726	2826	2926	3026	3126
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3226	3326	3456	3526	3626	3726	3826	3926	4026	4126	4226	4326	4426	4526	4626	4726	4826	4926	5026	5126	5226	5326	5426	5526	5626
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

Structure	Built-in Guideway Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

## Motor Left Upper Side / Motor Right Upper Side

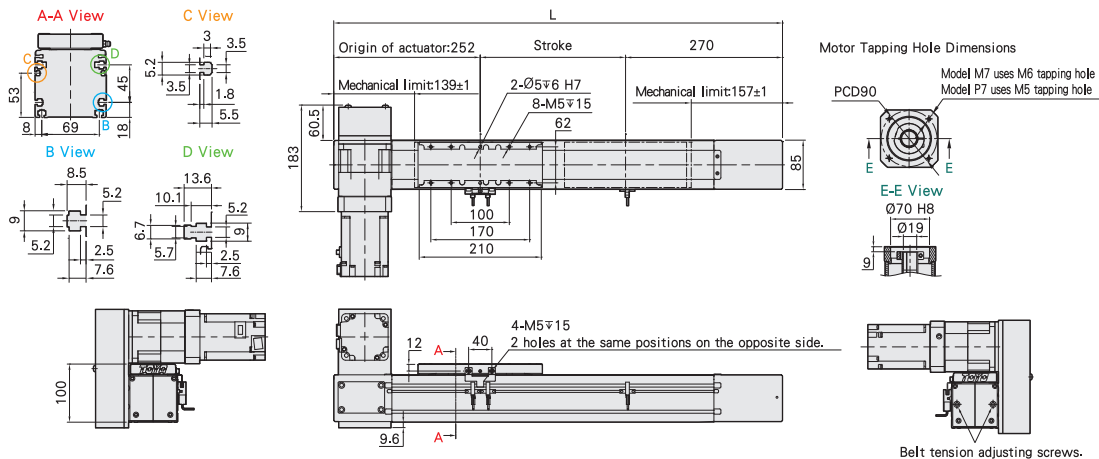
**LU**

### Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

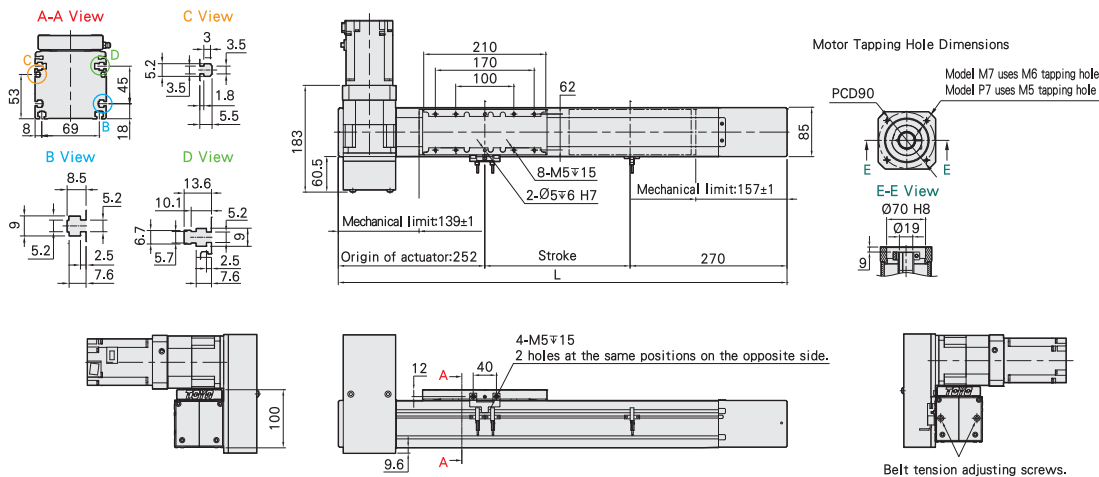
**RU**

### Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

1 axis  
**M**

MH65
MH80
MK65
MK85
MK110

### Motor Left Lower Side / Motor Right Lower Side

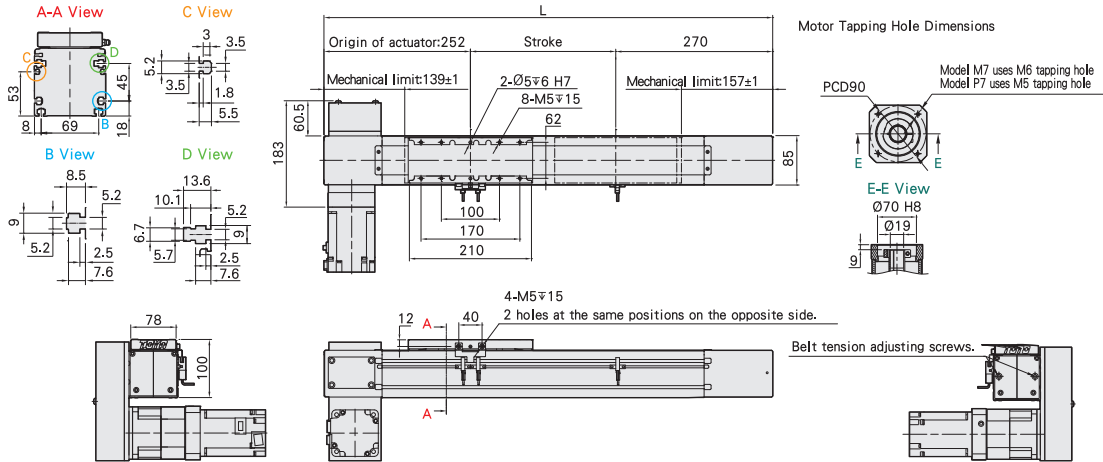
L

#### Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

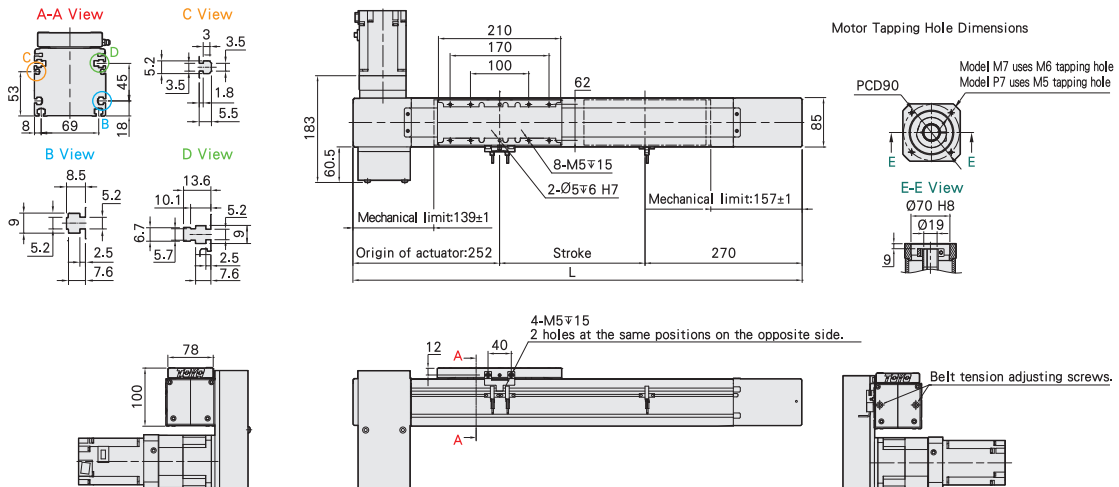
R

#### Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	14.81	15.65	16.49	17.33	18.17	19.01	19.85	20.69	21.53	22.37	23.21	24.05	24.89	25.73	26.57	27.41	28.25	29.09	29.93	30.77	31.61	32.45	33.29	34.13	34.97
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	35.81	36.65	37.49	38.33	39.17	40.01	40.85	41.69	42.53	43.37	44.21	45.05	45.89	46.73	47.57	48.41	49.25	50.09	50.93	51.77	52.61	53.45	54.29	55.13	55.97

Structure	Built-in Guideway Ball Screw Type
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

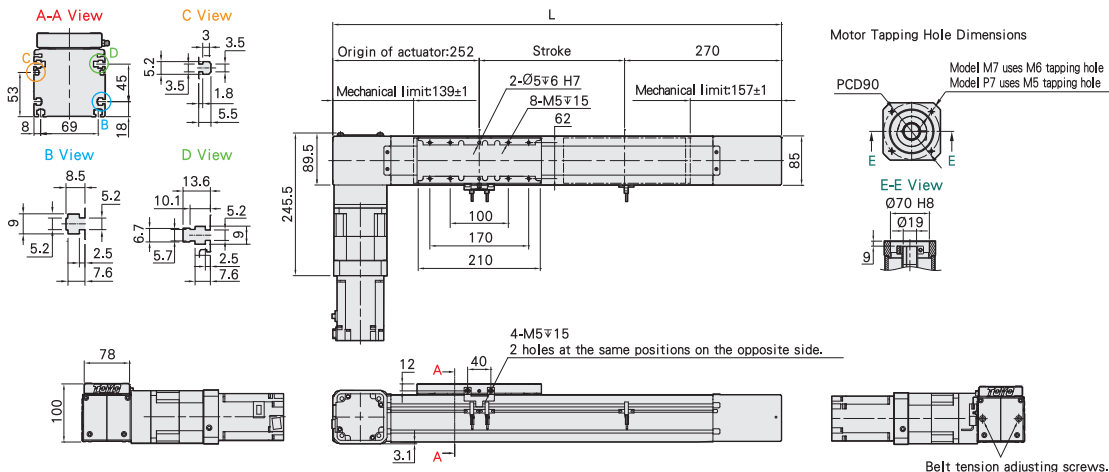
## Reducer With Motor Left Side / Reducer With Motor Right Side

### LT Reducer With Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	13.06	13.88	14.7	15.52	16.34	17.16	17.98	18.8	19.62	20.44	21.26	22.08	22.9	23.72	24.54	25.36	26.18	27	27.82	28.64	29.46	30.28	31.1	31.92	32.74

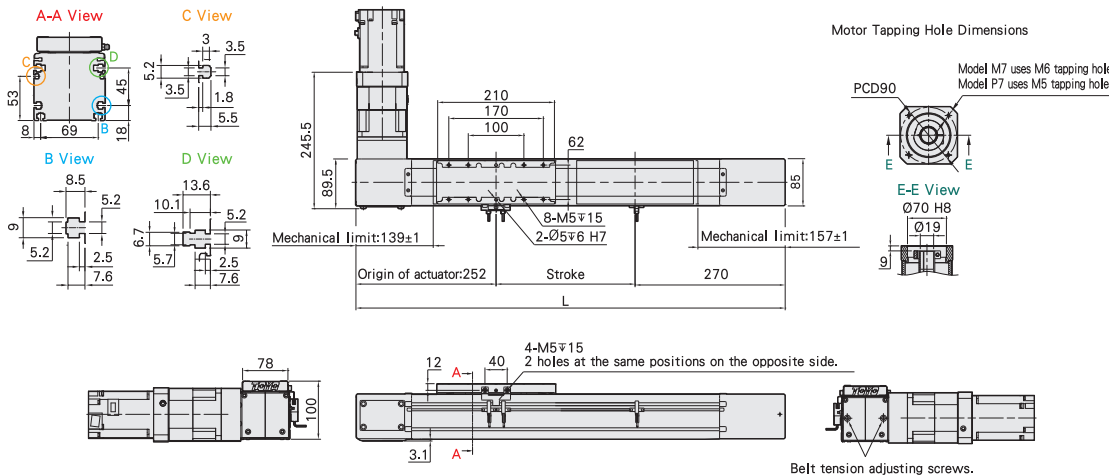
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	33.56	34.38	35.2	36.02	36.84	37.66	38.48	39.3	40.12	40.94	41.76	42.58	43.4	44.22	45.04	45.86	46.68	47.5	48.32	49.14	49.96	50.78	51.6	52.42	53.24

### RT Reducer With Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	13.06	13.88	14.7	15.52	16.34	17.16	17.98	18.8	19.62	20.44	21.26	22.08	22.9	23.72	24.54	25.36	26.18	27	27.82	28.64	29.46	30.28	31.1	31.92	32.74

Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	33.56	34.38	35.2	36.02	36.84	37.66	38.48	39.3	40.12	40.94	41.76	42.58	43.4	44.22	45.04	45.86	46.68	47.5	48.32	49.14	49.96	50.78	51.6	52.42	53.24

1 axis  
**M**

MH65
MH80
MK65
MK85
MK110

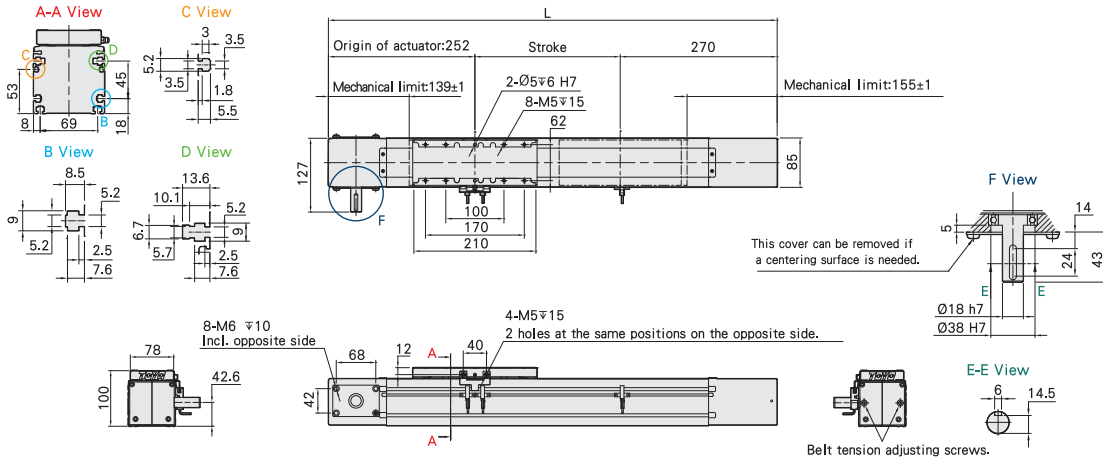
### Motor Shaft Left Side / Motor Shaft Right Side

#### LL Motor Shaft Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



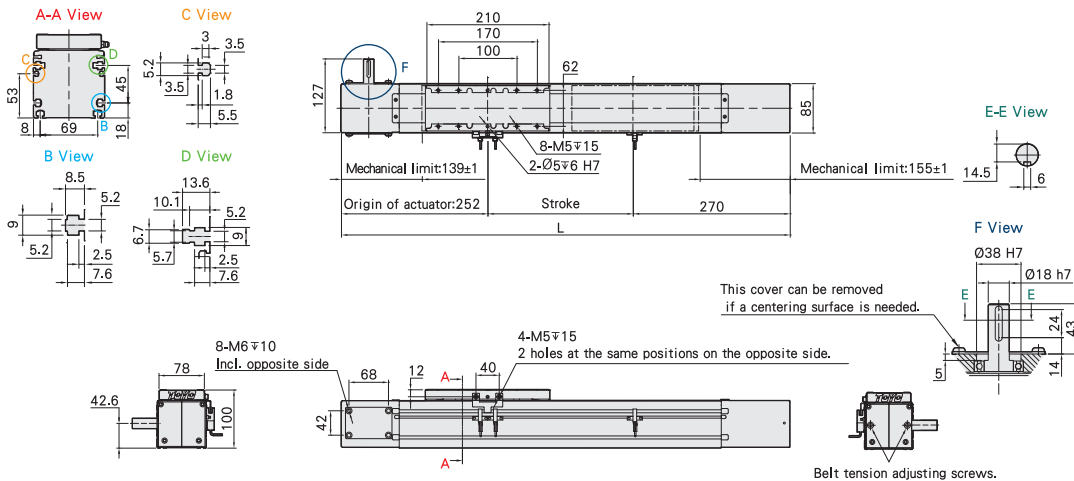
Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	10.55	11.37	12.19	13.01	13.83	14.65	15.47	16.29	17.11	17.93	18.75	19.57	20.39	21.21	22.03	22.85	23.67	24.49	25.31	26.13	26.95	27.77	28.59	29.41	30.23
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	31.05	31.87	32.69	33.51	34.33	35.15	35.97	36.79	37.61	38.43	39.25	40.07	40.89	41.71	42.53	43.35	44.17	44.99	45.81	46.63	47.45	48.27	49.09	49.91	50.73

#### RR Motor Shaft Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	622	722	822	922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2100	2222	2322	2422	2522	2622	2722	2822	2922	3022
KG	10.55	11.37	12.19	13.01	13.83	14.65	15.47	16.29	17.11	17.93	18.75	19.57	20.39	21.21	22.03	22.85	23.67	24.49	25.31	26.13	26.95	27.77	28.59	29.41	30.23
Stroke	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
L	3122	3222	3322	3422	3522	3622	3722	3822	3922	4022	4122	4222	4322	4422	4522	4622	4722	4822	4922	5022	5122	5222	5322	5422	5522
KG	31.05	31.87	32.69	33.51	34.33	35.15	35.97	36.79	37.61	38.43	39.25	40.07	40.89	41.71	42.53	43.35	44.17	44.99	45.81	46.63	47.45	48.27	49.09	49.91	50.73



Structure	Built-in Guideway Ball Screw Type GTH / GTY	Ball Screw Type ETH	Belt Type ETB / M	Clean Room Ball Screw Type ECH	Clean Room Belt Type ECB	Reference
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1 axis  
**M**

MH65

MH80

MK65

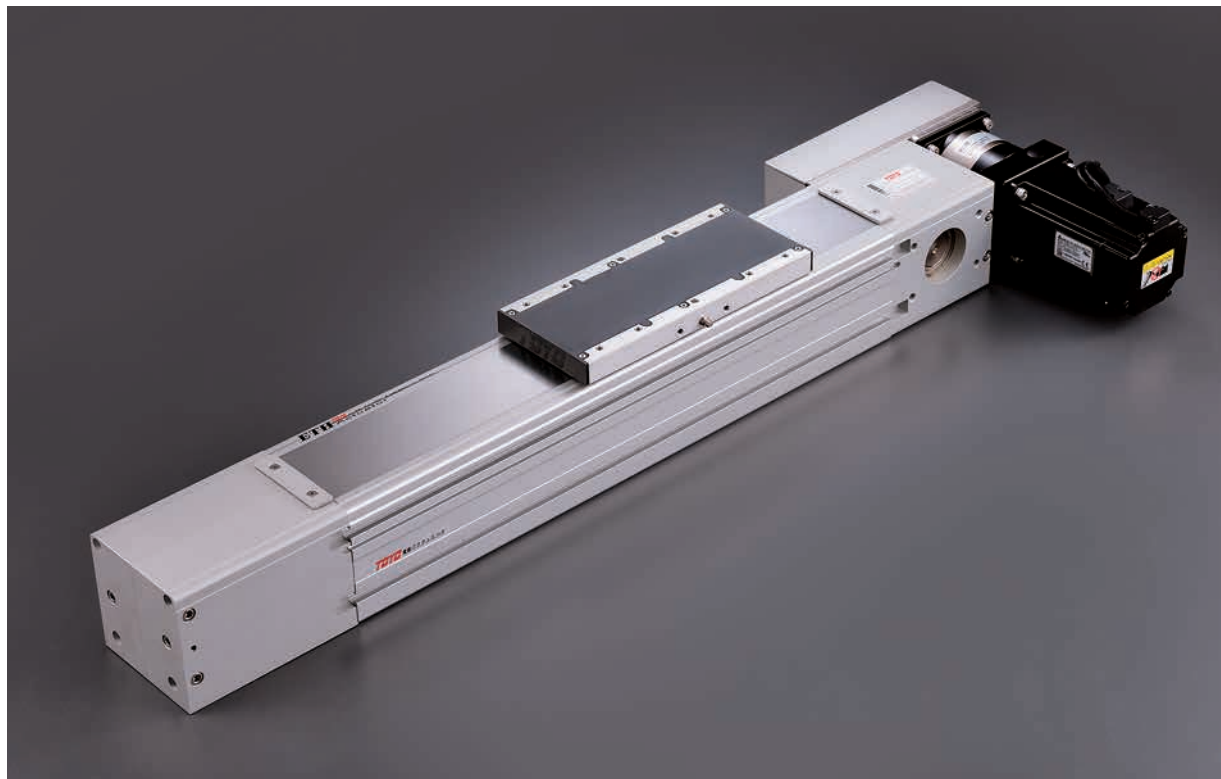
**MK85**

MK110

# MK110

1-axis

▶ Belt Drive



The picture above is not to scale. See the drawing for actual dimensions.

Maximum Stroke **4800mm**

Maximum Speed **1250mm/s**

Motor Output **750W**

Belt Width **50 mm**

Linear Guide **23X18-1pc**

\*The maximum speed depends on the gear ratio.

## Ordering Method

# MK110 - 2000 - L - M7B - C 4 - NL - 10 - A001

### Model

#### Stroke

100-4800mm

100 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*14mm±2 of overtravel included.

### Special Order No.

#### Grease Fitting Position

NL	To The Left of The Slider
NR	To The Right of The Slider

#### Motor Position

Gearbox ratio: 3:1/5:1/7:1/10:1

L	Motor Left Side	R	Motor Right Side
LU	Motor Left Upper Side	RU	Motor Right Upper Side
LD	Motor Left Lower Side	RD	Motor Right Lower Side
LT	Reducer With Motor Left Side	RT	Reducer With Motor Right Side
No Gearbox			
LL	Motor Shaft Left Side	RR	Motor Shaft Right Side

#### Dimensions

M7	Servo motor: PCD90-M6-shift Φ19mm	B
P7	Servo motor: PCD90-M5-shift Φ19mm	

\*There is no description for models that do not include brakes.

#### Home Sensor

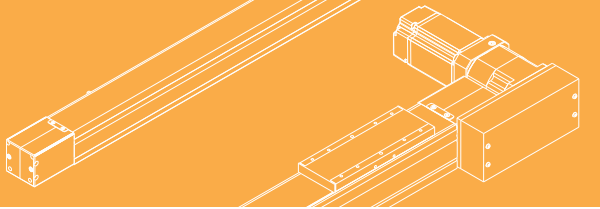
	Outside
C	Motor Side
D	Opposite Motor Side
	No Sensor
E	No Sensor

#### Limit Sensor

	Outside
3	1Pc
4	2Pc
	No Sensor
5	No Sensor

#### Gearbox Ratio

10	10:1
15	15:1
20	20:1
N	No Gearbox



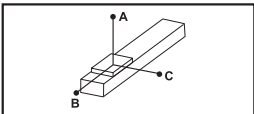
**Specifications**

Actuator Specs	Belt Lead (mm)		10:1	15:1	20:1	
	Maximum Speed (mm/s)		1250	833	625	
	Max payload	Horizontal (kg)	100	150	200	
		Vertical (kg)	23	36	50	
	Rated Thrust (N)		765			
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	3036	3560	3687
			2540 km of travel	820	961	996
		Static Horizontal (kg)	9006			
	Repeatability (mm)		±0.1			
	Allowable Input Torque (rpm)		300	200	150	
	Lost Motion (mm)		0.15			
	Allowable Input Torque (N.m)		84	126	168	
	Maximum Acceleration (in/sec)		5			
	Friction Coefficient		<0.01			
Stroke Pitch (mm)		100-4800mm / 100mm Pitch				

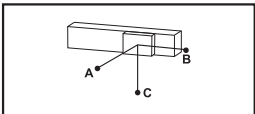
Parts Specs	Belt Lead (mm)		10:1	15:1	20:1
	Belt	Standard tension value Tis (N)	376		
		Maximum value of allowed tension Timax (N)	651		
	Linear Guide	Basic dynamic load rating C (KG)	5162		
		Basic static load rating Co (KG)	9006		
	Fixed Bearing	Basic dynamic load rating Cor (N)	16600		
		Basic static load rating Cr (N)	26400		
	AC Servo Motor Output (W)		750		
	Belt Width (mm)		50		
	High Rigidity Linear Guide (mm)		W23XH18		
	Home Sensor	Outside	EE-SX672(NPN)		

\*Notice, if the belt breaks, the moving parts will fall when the application is vertical.  
 \*Lead is 250mm without gearbox.  
 \*Acceleration and deceleration value is set at 0.4 seconds.

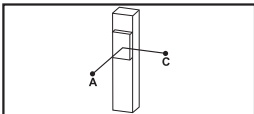
**Allowable Overhang**



(Unit : mm)



(Unit : mm)



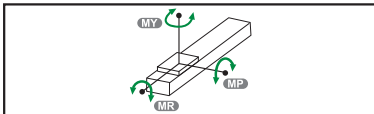
(Unit : mm)

Horizontal Installation		A	B	C
		10:1	60kg	1110
	80kg	750	126	16
	100kg	550	85	11
15:1	90kg	1400	160	20
	120kg	940	100	13
	150kg	650	63	8
20:1	120kg	1400	115	15
	160kg	900	65	8
	200kg	550	35	5

Wall Installation		A	B	C
		10:1	60kg	25
	80kg	16	126	750
	100kg	11	85	550
15:1	90kg	20	160	1400
	120kg	13	100	940
	150kg	8	63	650
20:1	120kg	15	115	1400
	160kg	8	65	900
	200kg	5	35	550

Vertical Installation		A	C
		10:1	12kg
	18kg	870	870
	23kg	680	680
15:1	14kg	1480	1480
	25kg	830	830
	36kg	575	575
20:1	30kg	750	750
	40kg	560	560
	50kg	450	450

**Static Loading moment**



(Unit : N.m)

MY	1479
MP	1479
MR	190

\*The torque value in the chart indicates the center of gravity.  
 \*The operational life of this product is 10,000km when used under the above specified conditions.  
 \*The steel stripe cover may be deformed when the length of the actuator is over 1000mm. Horizontal application is recommended.  
 \*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
MY	383
MP	383
MR	49

2540 km of travel (Unit : N.m)	
MY	101
MP	101
MR	13

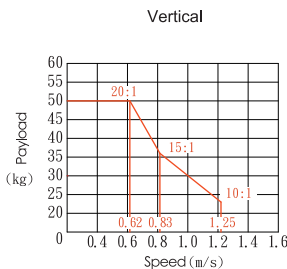
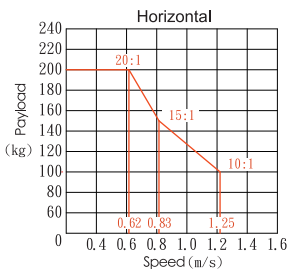
**Numbers of Fixing Screws**

M6 nuts Qty. (by stroke)

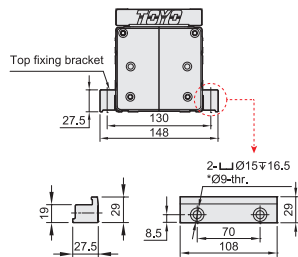
Stroke	100~500	600~1000	1100~1500	1600~2000	2100~2500	2600~3000	3100~3500	3600~4000	4100~4500	4600~4800
Quantity	4	6	8	10	12	14	16	18	20	22

\*This device is typically mounted from the bottom using the M6 bolt and nut.

**Acceleration-Payload Relationship**



**Installation Instructions & Dimensions**



\*Top fixing plate is optional.

## Motor Left Side / Motor Right Side

L

### Motor Left Side

2D CAD
 3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

**A-A View**

**B View**

**C View**

**D View**

**Motor Tapping Hole Dimensions**

**E-E View**

Origin of actuator: 435.5    Stroke: 363

Mechanical limit: 307.5±1    2-Ø6▽10 H7    Mechanical limit: 235±1

8-M6▽15    88

10.1±188    15/20±196    65.5    110

120    200    240

108    129

14    50

4-M6▽15  
2 holes at the same positions on the opposite side.

Belt tension adjusting screws.

Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	898.5	998.5	1098.5	1198.5	1298.5	1398.5	1498.5	1598.5	1698.5	1798.5	1898.5	1998.5	2098.5	2198.5	2298.5	2398.5	2498.5	2598.5	2698.5	2798.5	2898.5	2998.5	3098.5	3198.5
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61

Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3298.5	3398.5	3498.5	3598.5	3698.5	3798.5	3898.5	3998.5	4098.5	4198.5	4298.5	4398.5	4498.5	4598.5	4698.5	4798.5	4898.5	4998.5	5098.5	5198.5	5298.5	5398.5	5498.5	5598.5
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

R

### Motor Right Side

2D CAD
 3D CAD

Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

**A-A View**

**B View**

**C View**

**D View**

**Motor Tapping Hole Dimensions**

**E-E View**

Origin of actuator: 435.5    Stroke: 363

Mechanical limit: 307.5±1    2-Ø6▽10 H7    Mechanical limit: 235±1

8-M6▽15    88

10.1±188    15/20±196    65.5    110

120    200    240

108    129

14    50

4-M6▽15  
2 holes at the same positions on the opposite side.

Belt tension adjusting screws.

Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	898.5	998.5	1098.5	1198.5	1298.5	1398.5	1498.5	1598.5	1698.5	1798.5	1898.5	1998.5	2098.5	2198.5	2298.5	2398.5	2498.5	2598.5	2698.5	2798.5	2898.5	2998.5	3098.5	3198.5
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61

Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3298.5	3398.5	3498.5	3598.5	3698.5	3798.5	3898.5	3998.5	4098.5	4198.5	4298.5	4398.5	4498.5	4598.5	4698.5	4798.5	4898.5	4998.5	5098.5	5198.5	5298.5	5398.5	5498.5	5598.5
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

Structure	Built-in Guideway Ball Screw Type
GTH / GTY	
ETH	Ball Screw Type
ETB / M	Belt Type
ECH	Clean Room Ball Screw Type
ECB	Clean Room Belt Type
Reference	

## Motor Left Upper Side / Motor Right Upper Side

LU

### Motor Left Upper Side

[Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

**Motor Tapping Hole Dimensions**

Model M7 uses M6 tapping hole  
Model P7 uses M5 tapping hole

**Belt tension adjusting screws.**

Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

RU

### Motor Right Upper Side

[Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

**Motor Tapping Hole Dimensions**

Model M7 uses M6 tapping hole  
Model P7 uses M5 tapping hole

**Belt tension adjusting screws.**

Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

1 axis  
**M**

MH65
MH80
MK65
MK85
MK110

## Motor Left Lower Side / Motor Right Lower Side

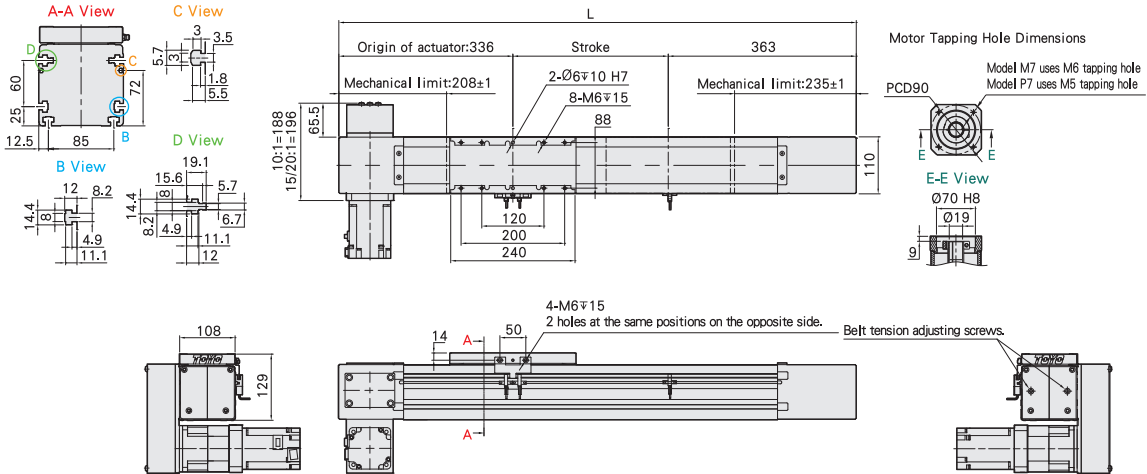
LD

Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61

Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

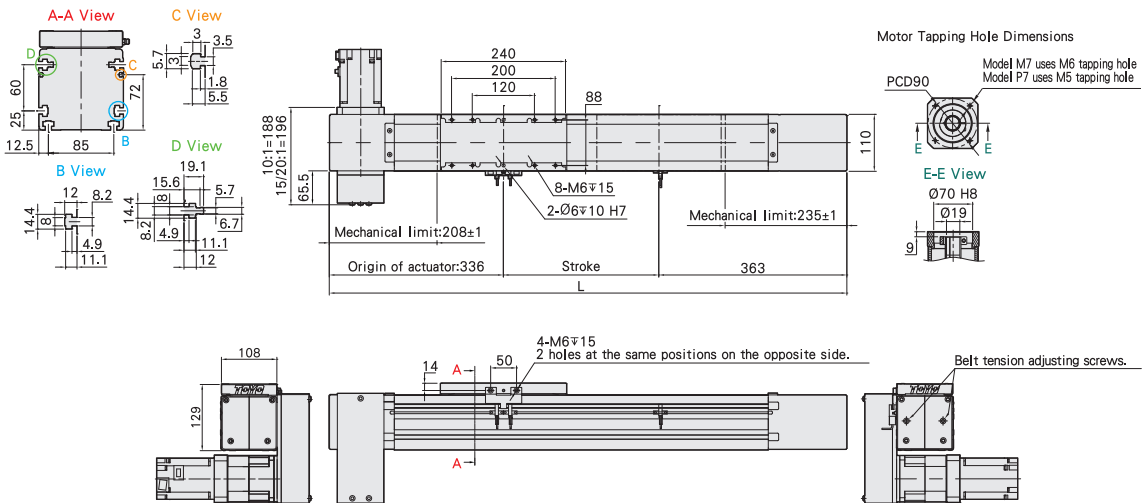
RD

Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	24.09	25.33	26.57	27.81	29.05	30.29	31.53	32.77	34.01	35.25	36.49	37.73	38.97	40.21	41.45	42.69	43.93	45.17	46.41	47.65	48.89	50.13	51.37	52.61

Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	53.85	55.09	56.33	57.57	58.81	60.05	61.29	62.53	63.77	65.01	66.25	67.49	68.73	69.97	71.21	72.45	73.69	74.93	76.17	77.41	78.65	79.89	81.13	82.37

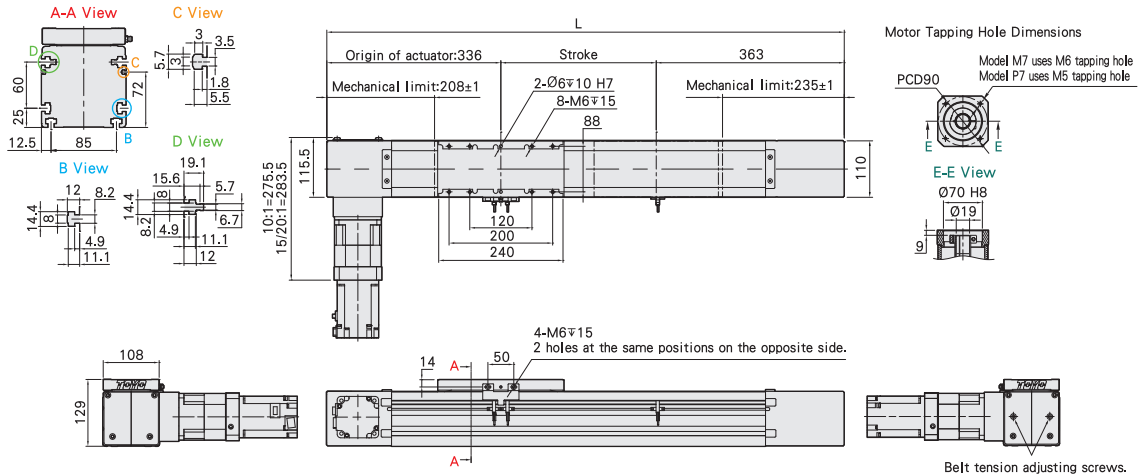
**Reducer With Motor Left Side / Reducer With Motor Right Side**

**LT Reducer With Motor Left Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



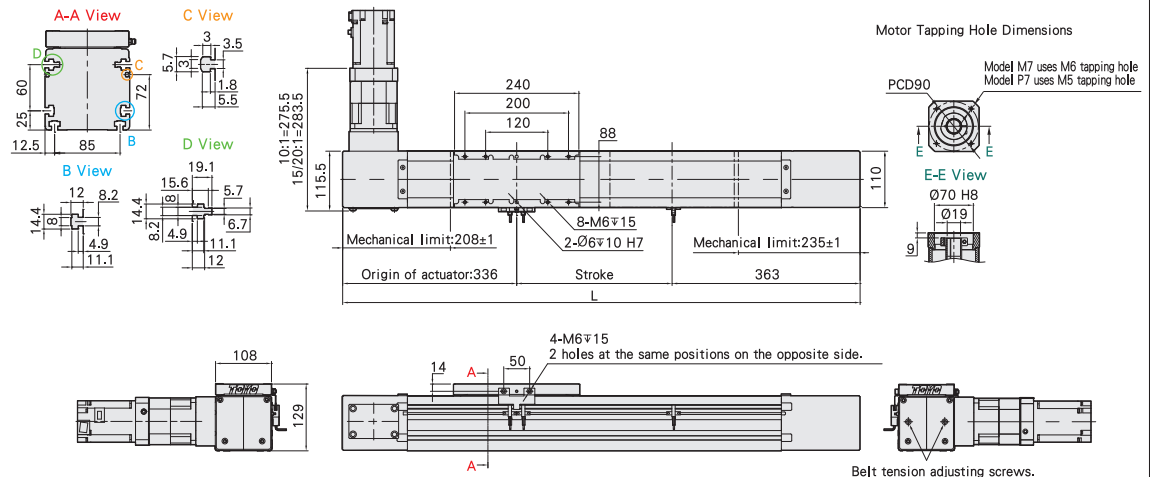
Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	21.33	22.57	23.81	25.05	26.29	27.53	28.77	30.01	31.25	32.49	33.73	34.97	36.21	37.45	38.69	39.93	41.17	42.41	43.65	44.89	46.13	47.37	48.61	49.85
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	51.09	52.33	53.57	54.81	56.05	57.29	58.53	59.77	61.01	62.25	63.49	64.73	65.97	67.21	68.45	69.69	70.93	72.17	73.41	74.65	75.89	77.13	78.37	79.61

**RT Reducer With Motor Right Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	21.33	22.57	23.81	25.05	26.29	27.53	28.77	30.01	31.25	32.49	33.73	34.97	36.21	37.45	38.69	39.93	41.17	42.41	43.65	44.89	46.13	47.37	48.61	49.85
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	51.09	52.33	53.57	54.81	56.05	57.29	58.53	59.77	61.01	62.25	63.49	64.73	65.97	67.21	68.45	69.69	70.93	72.17	73.41	74.65	75.89	77.13	78.37	79.61

1 axis  
**M**

MH65

MH80

MK65

MK85

MK110

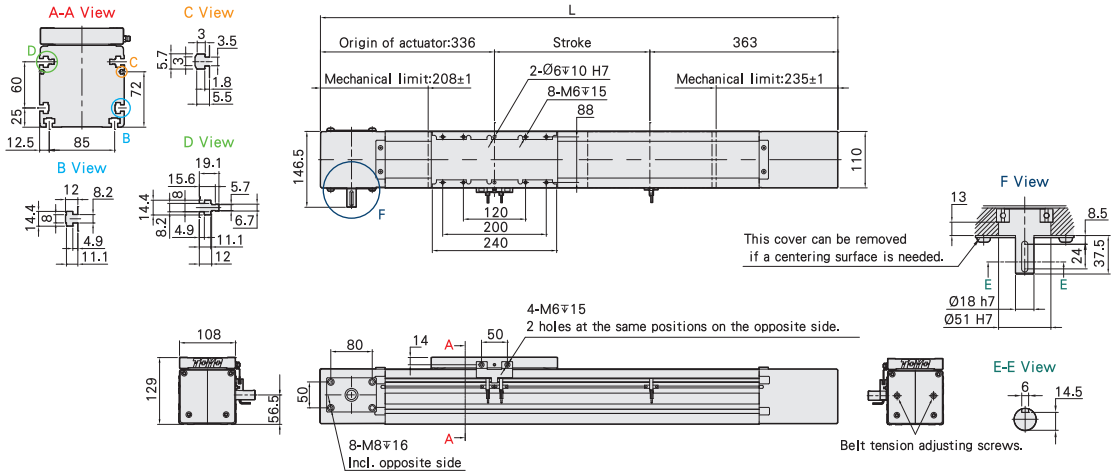
## Motor Shaft Left Side / Motor Shaft Right Side

### LL Motor Shaft Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



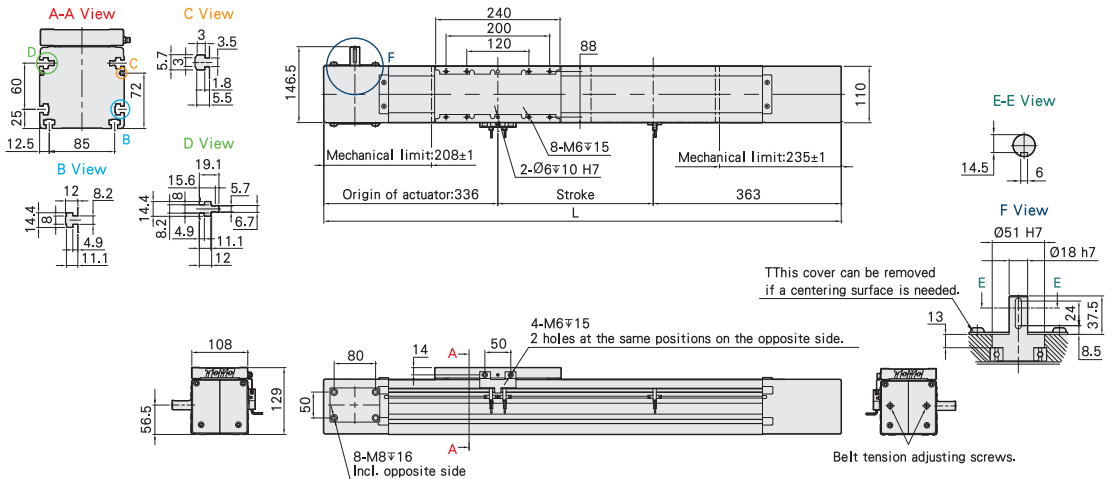
Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	18.86	20.1	21.34	22.58	23.82	25.06	26.3	27.54	28.78	30.02	31.26	32.5	33.74	34.98	36.22	37.46	38.7	39.94	41.18	42.42	43.66	44.9	46.14	47.38
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	48.62	49.86	51.1	52.34	53.58	54.82	56.06	57.3	58.54	59.78	61.02	62.26	63.5	64.74	65.98	67.22	68.46	69.7	70.94	72.18	73.42	74.66	75.9	77.14

### RR Motor Shaft Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
L	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399	2499	2599	2699	2799	2899	2999	3099
KG	18.86	20.1	21.34	22.58	23.82	25.06	26.3	27.54	28.78	30.02	31.26	32.5	33.74	34.98	36.22	37.46	38.7	39.94	41.18	42.42	43.66	44.9	46.14	47.38
Stroke	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800
L	3199	3299	3399	3499	3599	3699	3799	3899	3999	4099	4199	4299	4399	4499	4599	4699	4799	4899	4999	5099	5199	5299	5399	5499
KG	48.62	49.86	51.1	52.34	53.58	54.82	56.06	57.3	58.54	59.78	61.02	62.26	63.5	64.74	65.98	67.22	68.46	69.7	70.94	72.18	73.42	74.66	75.9	77.14



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**M**

MH65

MH80

MK65

MK85

MK110

**MEMO**

# Electric Actuator ECH Series

## Clean Room/Ball Screw



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

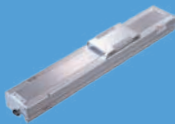
Reference

## CONTENTS

### Clean Room/Ball Screw

#### MEDIUM

ECH14

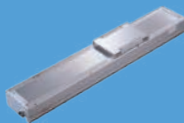


Width 135mm  
Max. stroke 1050mm .....365  
Max. payload 110kg



#### LARGE

ECH17

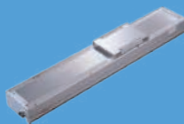


Width 170mm  
Max. stroke 1250mm .....377  
Max. payload 120kg



#### LARGE

ECH22



Width 220mm  
Max. stroke 1500mm .....387  
Max. payload 150kg



# Spec Index - Clean Room Ball Screw Actuator

Use Where	Driven Mode	Model Spec.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload (kg)		Maximum Speed <sup>*1</sup> (mm/s)
						Outer Diameter (mm)	Lead (mm)	Horizontal	Vertical	
Clean Room	Ball Screw	ECH14	200W	135	±0.01	16	5	95	27	250
							10	75	18	500
							20	35	7	1000
							32	15	-	1600
		ECH14	400W	135	±0.01	16	5	110	33	250
							10	88	22	500
							20	40	10	1000
							32	30	8	1600
		ECH17	400W	170	±0.01	20	5	120	40	250
							10	110	30	500
							20	75	14	1000
							40	22	7	2000
		ECH17	750W	170	±0.01	20	5	120	50	250
							10	120	40	500
							20	83	25	1000
							40	43	12	2000
ECH22	750W	220	±0.01	25	5	150	55	250		
					10	150	45	500		
					25	105	20	1250		
					20	40	43	2000		

\*1 The highest speed is based on the servo motor's maximum RPM of 3,000.

Structure

Bullin Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

Stroke(mm) & Maximum Speed(mm/s)<sup>\*2</sup> Speed

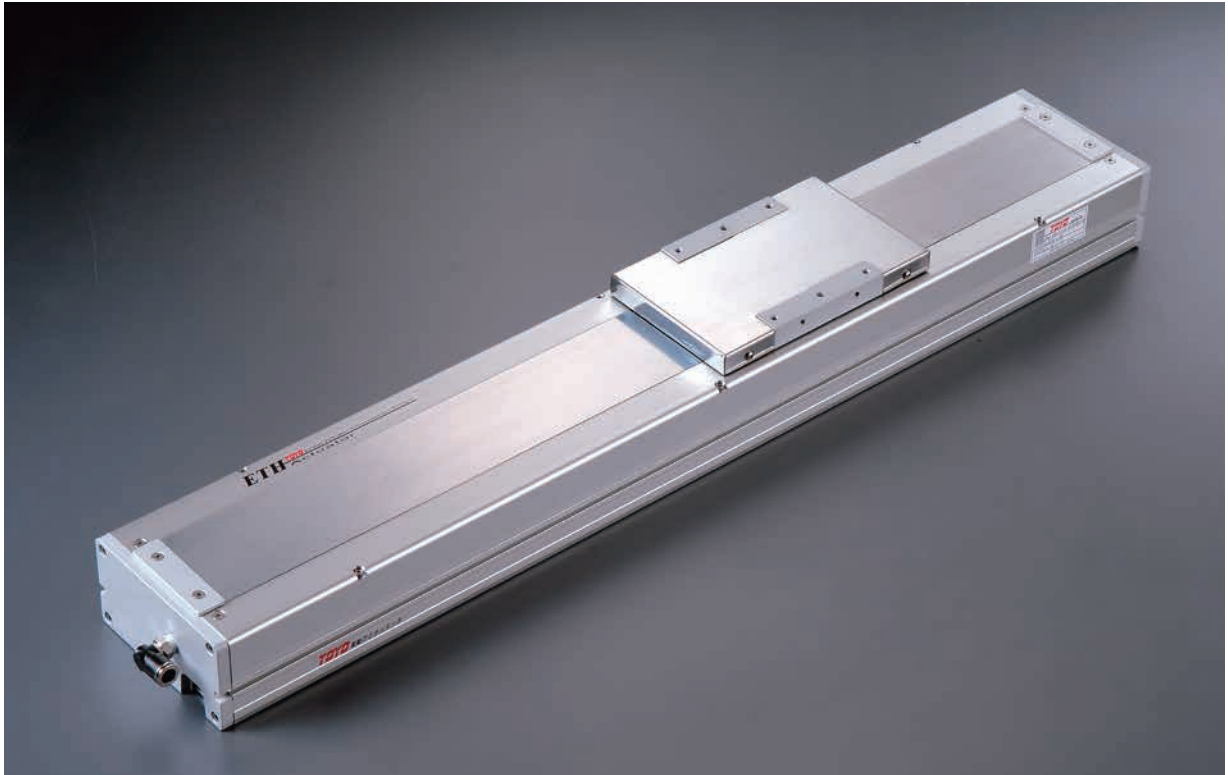
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
250																225	200	175	150	125	100										
500																450	400	350	300	250	200										
1000																900	800	700	600	500	400										
1600																1440	1280	1120	960	800	640										
250																225	200	175	150	125	100										
500																450	400	350	300	250	200										
1000																900	800	700	600	500	400										
1600																1440	1280	1120	960	800	640										
250																		225		200		175		150							
500																		450		400		350		300							
1000																		900		800		700		600							
2000																		1800		1600		1400		1200							
250																				225		200		175		150		125		100	
500																				450		400		350		300		250		200	
1250																				1125		1000		875		750		625		500	
2000																				1800		1600		1400		1200		1000		800	600

\*2Written above is the maximum safe speed for each standard stroke. Whipping may occur above this speed.

# ECH14

1-axis

▶ Clean Room ▶ Ball Screw Drive



The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke **1050mm**

Maximum Speed **1600mm/s**

Motor Output **200W**

Ball Screw  $\varnothing$  **16mm**

Linear Guide **15X12.5-2pc**

## Ordering Method

# ECH14 - L 5 - 50 - M - M20B - C 4 - 0001

Model

Special Order No.

### Stroke

50-1050mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*12mm±2 of overtravel included.

### Motor Position

M	Motor Hidden In
BC	Motor Exposed
BL	Motor Left Side
BR	Motor Right Side
BM	Motor Bottom Side

### Motor Brand

M	Mitsubishi	10	-	B
P	Panasonic	20	200W	
Y	Yaskawa	40	-	
T	Delta	75	-	

\*If No Brake, No Description.

### Ball Screw Lead

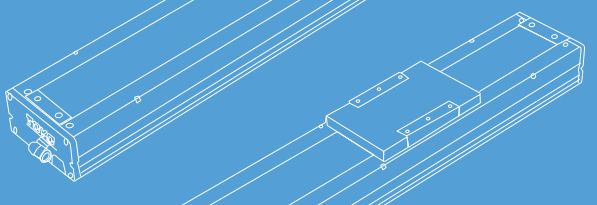
05	05mm
10	10mm
20	20mm
32	32mm

### Home Sensor

In Side	
A	Motor Side
B	Opposite Motor Side
Out Side	
C	Motor Side
D	Opposite Motor Side
No Sensor	
E	No Sensor

### Limit Sensor

In Side	
1	1 Pc
2	2 Pc
Out Side	
3	1 Pc
4	2 Pc
No Sensor	
5	No Sensor



**Specifications**

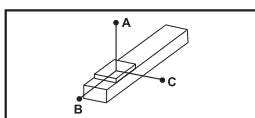
<b>Actuator Specs</b>	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)		95	75	35	15
		Vertical (kg)		27	18	7	-
	Rated Thrust (N)			683	341	174	107
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)			±0.01			
	Allowable Input Torque (rpm)			3000			
	Start Torque (N.cm)			11			
	Lost Motion (mm)			0.1			
	Allowable Input Torque (N.m)			3.1			
	Maximum Acceleration (in/sec)			10			
Friction Coefficient			<0.01				
Stroke Pitch (mm)			50-1050mm/50mm Pitch				

<b>Parts Specs</b>	Ball Screw Lead (mm)		5	10	20	32	
	Ball Screw	Basic dynamic load rating Ca (N)		10526	5817	5435	4836
		Basic static load rating Coa (N)		23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)		4824			
		Basic static load rating Co (KG)		8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)		3040			
		Basic static load rating Cr (N)		7100			
	AC Servo Motor Output (W)			200			
	Ball Screw Ø (mm)			C7 φ 16			
	High Rigidity Linear Guide (mm)			W15XH12.5			
	Coupling (mm)			10X14/11 <sup>(Note 1)</sup>			
	Home Sensor	Outside		EE-SX672(NPN)			
		Built-in		EE-SX674(NPN)			

\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

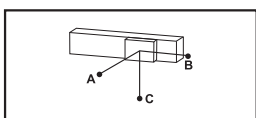
Note 1: Motor (200W) Shaft Diameter: Panasonic: 11mm; Other: 14mm.

**Allowable Overhang**



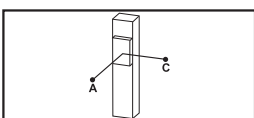
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	60kg	2512	242	232
	80kg	1811	172	164
	95kg	1537	138	133
10 Lead	30kg	2727	470	430
	50kg	1577	266	242
	75kg	1004	164	150
20 Lead	10kg	2304	1222	1028
	22kg	1443	540	451
	35kg	1005	324	271
32 Lead	10kg	1555	840	623
	15kg	1033	545	405
	-	-	-	-



(Unit : mm)

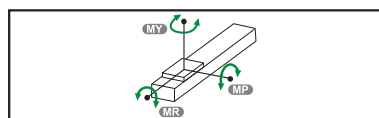
Wall Installation	A	B	C	
5 Lead	55kg	257	269	2883
	75kg	178	186	2000
	95kg	133	138	1537
10 Lead	35kg	363	395	2368
	55kg	218	238	1445
	75kg	150	164	1004
20 Lead	12kg	854	1019	2552
	20kg	500	596	1588
	35kg	271	324	1005
32 Lead	8kg	787	1060	1980
	15kg	405	545	1033
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	15kg	1118	1118
	22kg	770	770
	27kg	626	626
10 Lead	10kg	1500	1500
	14kg	1072	1072
	18kg	833	833
20 Lead	4kg	2980	2980
	7kg	1700	1700
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	551
<b>MP</b>	552
<b>MR</b>	485

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	210.1
<b>MP</b>	210.1
<b>MR</b>	208.8

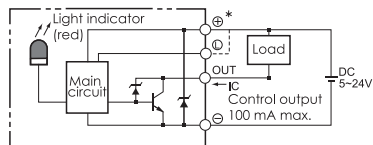
**2540 km of travel** (Unit : N.m)

<b>MY</b>	55.3
<b>MP</b>	55.3
<b>MR</b>	54.9

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	200	220	HG-KR23	MR-J4-20A
		With Brake (Vertical Type)	200	220	HG-KR23B	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	200	220	MHMD022G1U	MADHT1507
		With Brake (Vertical Type)	200	220	MHMD022G1V	MADHT1507
Delta	T	No Brake (Horizontal Type)	200	220	ECMA-C20602ES	ASD-B20221-B
		With Brake (Vertical Type)	200	220	ECMA-C20602FS	ASD-B20221-B

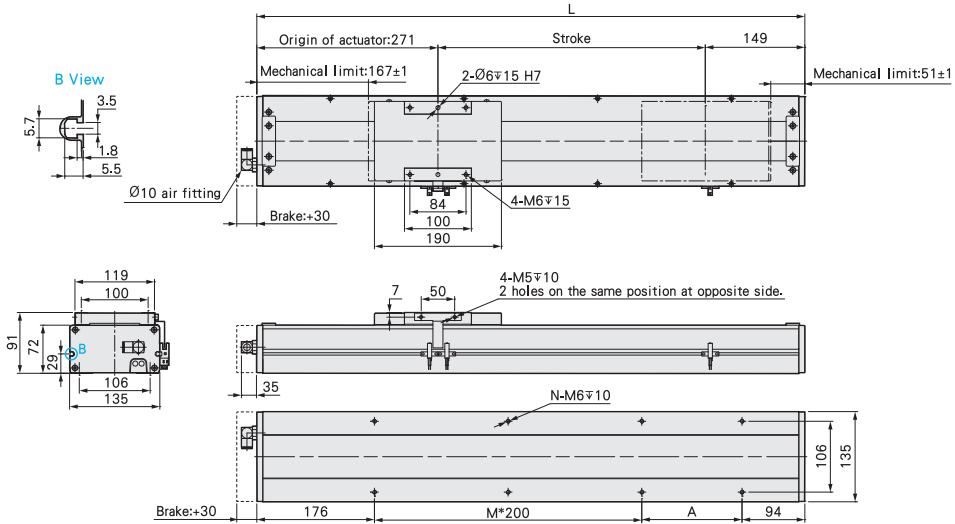
**Sensor Layout**



## Motor Hidden In / Motor Exposed

Unit: mm

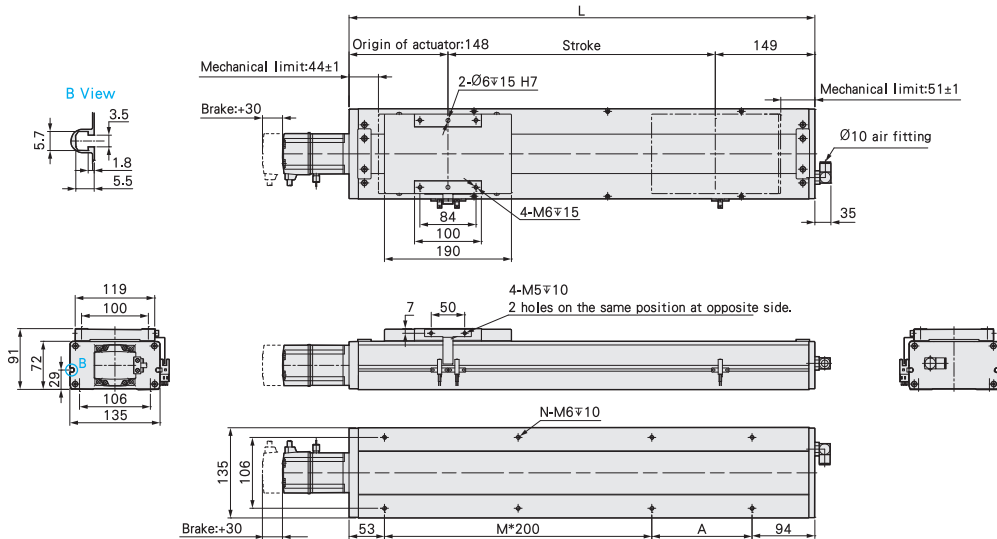
**M** Motor Hidden In   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	11.5	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.5	21.1	21.7	22.3	22.9	23.5

**BC** Motor Exposed   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



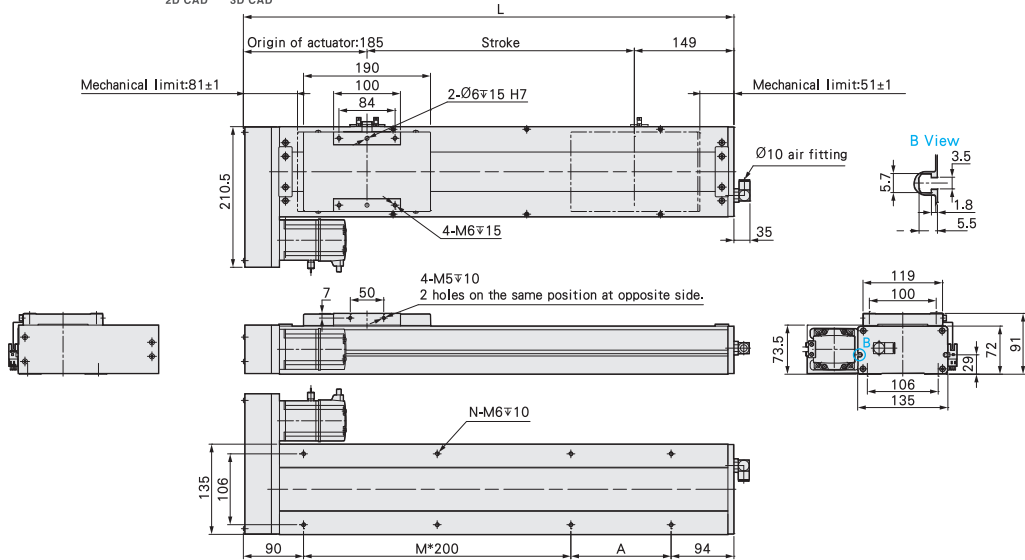
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.5	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5



**Motor Left Side /  
Motor Right Side**

**BL** Motor Left Side   Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

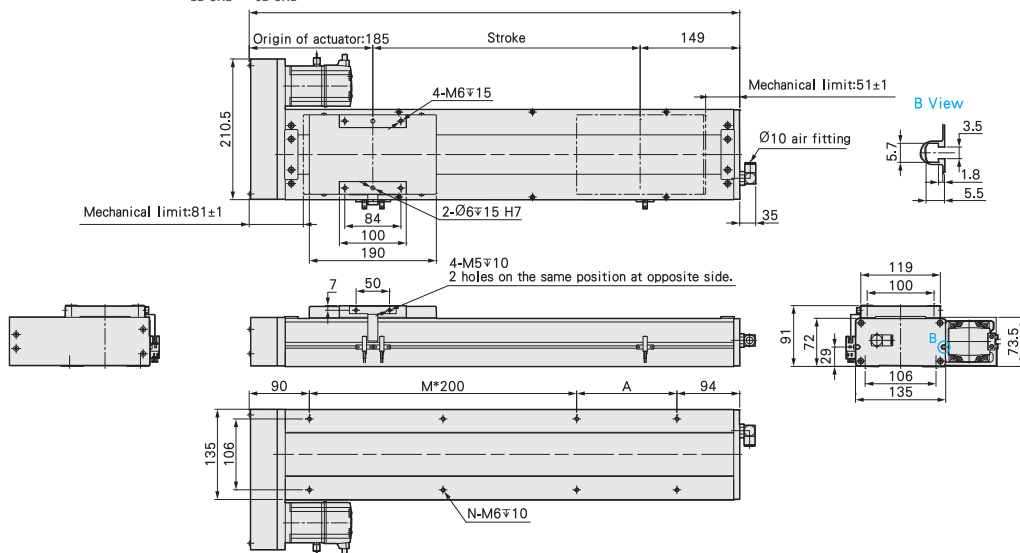
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3

**BR** Motor Right Side   Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3

## Motor Bottom Side

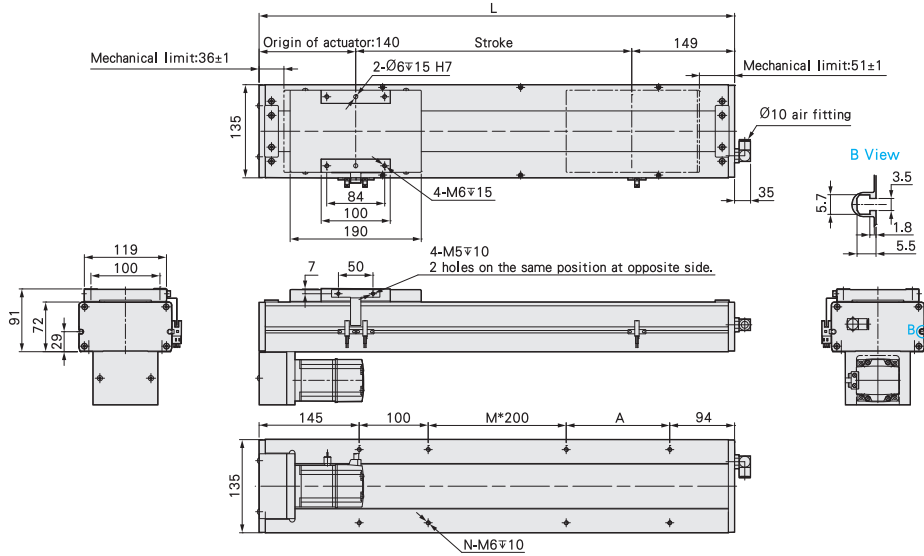


Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	339	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

## MEMO

1 axis  
**ECH**

ECH14

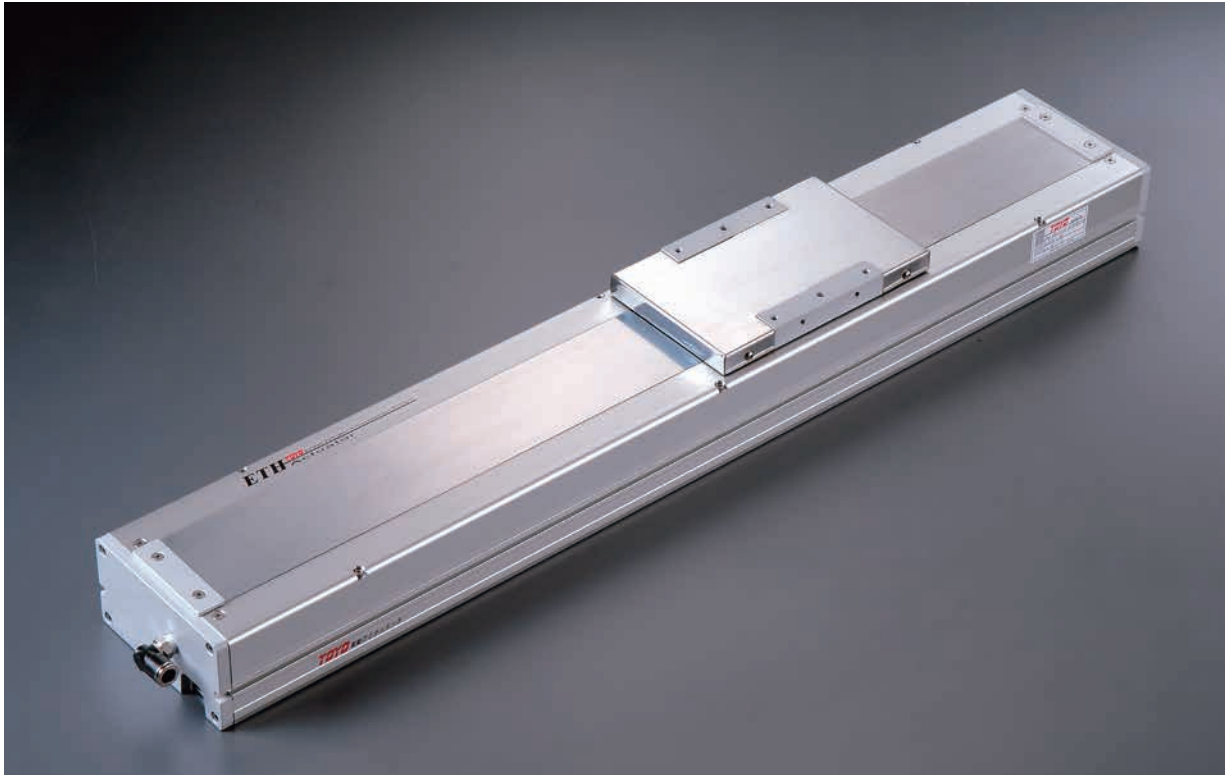
ECH17

ECH22

# ECH14

1-axis

▶ Clean Room ▶ Ball Screw Drive



The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke **1050mm**

Maximum Speed **1600mm/s**

Motor Output **400W**

Ball Screw  $\varnothing$  **16mm**

Linear Guide **15X12.5-2pc**

## Ordering Method

# ECH14 - L 5 - 50 - M - M40B - C 4 - 0001

Model

Special Order No.

Stroke

50-1050mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*12mm±2 of overtravel included.

Motor Position

M	Motor Hidden In
BC	Motor Exposed
BL	Motor Left Side
BR	Motor Right Side
BM	Motor Bottom Side

Motor Brand

M	Mitsubishi	10	-	B
P	Panasonic	20	-	
Y	Yaskawa	40	400W	
T	Delta	75	-	

\*If No Brake, No Description.

Ball Screw Lead

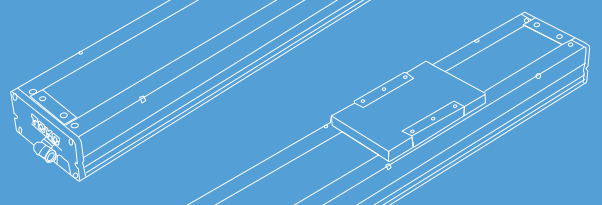
05	05mm
10	10mm
20	20mm
32	32mm

Home Sensor

In Side	
A	Motor Side
B	Opposite Motor Side
Out Side	
C	Motor Side
D	Opposite Motor Side
No Sensor	
E	No Sensor

Limit Sensor

In Side	
1	1 Pc
2	2 Pc
Out Side	
3	1 Pc
4	2 Pc
No Sensor	
5	No Sensor



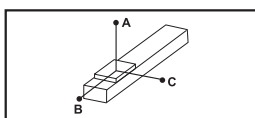
**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	32	
	Maximum Speed (mm/s)		250	500	1000	1600	
	Max payload	Horizontal (kg)		110	88	40	30
		Vertical (kg)		33	22	10	8
	Rated Thrust (N)			1388	694	347	218
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	4020	3573	3216	2680
			2540 km of travel	1085	965	868	724
		Static Horizontal (kg)	8824				
	Repeatability (mm)			±0.01			
	Allowable Input Torque (rpm)			3000			
	Start Torque (N.cm)			11			
	Lost Motion (mm)			0.1			
	Allowable Input Torque (N.m)			3.1			
	Maximum Acceleration (in/sec)			10			
Friction Coefficient			<0.01				
Stroke Pitch (mm)			50-1050mm/50mm Pitch				

Parts Specs	Ball Screw Lead (mm)		5	10	20	32	
	Ball Screw	Basic dynamic load rating Ca (N)		10526	5817	5435	4836
		Basic static load rating Coa (N)		23201	11105	11478	10948
	Linear Guide	Basic dynamic load rating C (KG)		4824			
		Basic static load rating Co (KG)		8824			
	Fixed Bearing	Basic dynamic load rating Cor (N)		3040			
		Basic static load rating Cr (N)		7100			
	AC Servo Motor Output (W)			400			
	Ball Screw Ø (mm)			C7 φ 16			
	High Rigidity Linear Guide (mm)			W15XH12.5			
	Coupling (mm)			10X14			
	Home Sensor	Outside		EE-SX672(NPN)			
		Built-in		EE-SX674(NPN)			

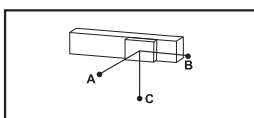
\*When the stroke is over 750mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



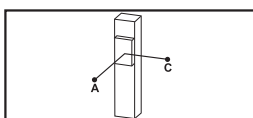
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	60kg	2512	242	232
	80kg	1811	172	164
	110kg	1284	114	108
10 Lead	30kg	2727	470	430
	50kg	1577	266	242
	88kg	854	134	122
20 Lead	10kg	2304	1222	1028
	22kg	1443	540	451
	40kg	860	277	233
32 Lead	15kg	1033	545	405
	25kg	604	311	233
	30kg	495	251	188



(Unit : mm)

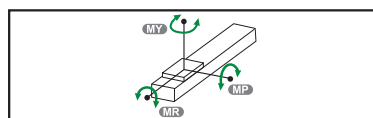
Wall Installation	A	B	C	
5 Lead	55kg	257	269	2883
	75kg	178	186	2000
	110kg	108	114	1284
10 Lead	35kg	363	395	2368
	55kg	218	238	1445
	88kg	123	134	854
20 Lead	12kg	854	1019	2552
	20kg	500	596	1588
	40kg	233	277	860
32 Lead	15kg	405	545	1033
	30kg	188	251	495
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	15kg	1118	1118
	22kg	770	770
	33kg	513	513
10 Lead	10kg	1500	1500
	14kg	1072	1072
	22kg	682	682
20 Lead	7kg	1700	1700
	10kg	1188	1188
	-	-	-
32 Lead	5kg	1503	1503
	8kg	944	944
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	551
<b>MP</b>	552
<b>MR</b>	485

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	210.1
<b>MP</b>	210.1
<b>MR</b>	208.8

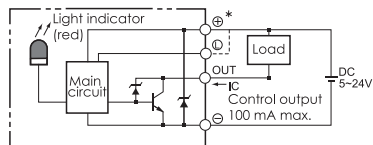
**2540 km of travel** (Unit : N.m)

<b>MY</b>	55.3
<b>MP</b>	55.3
<b>MR</b>	54.9

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MADHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MADHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



## Motor Hidden In / Motor Exposed

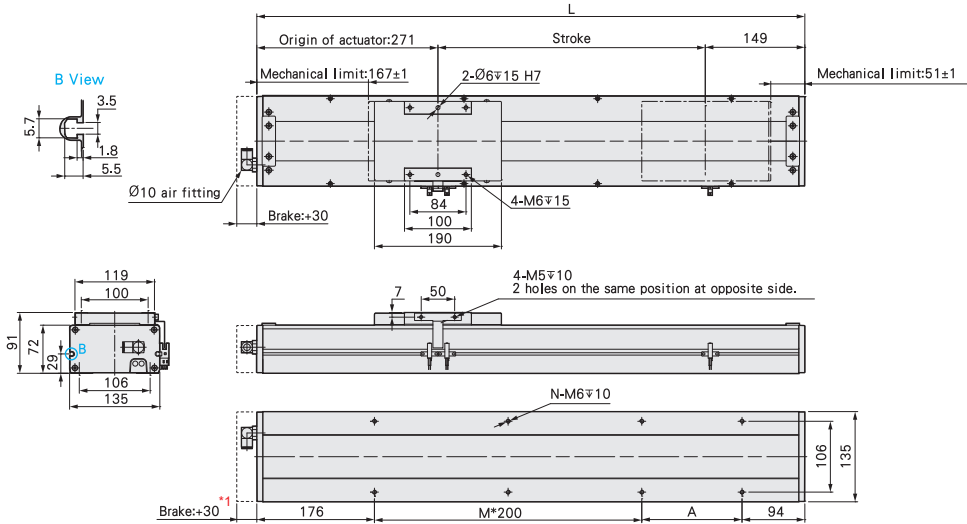


Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



\*Using a Delta 400w motor will add 40mm in length

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	11.5	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.5	21.1	21.7	22.3	22.9	23.5

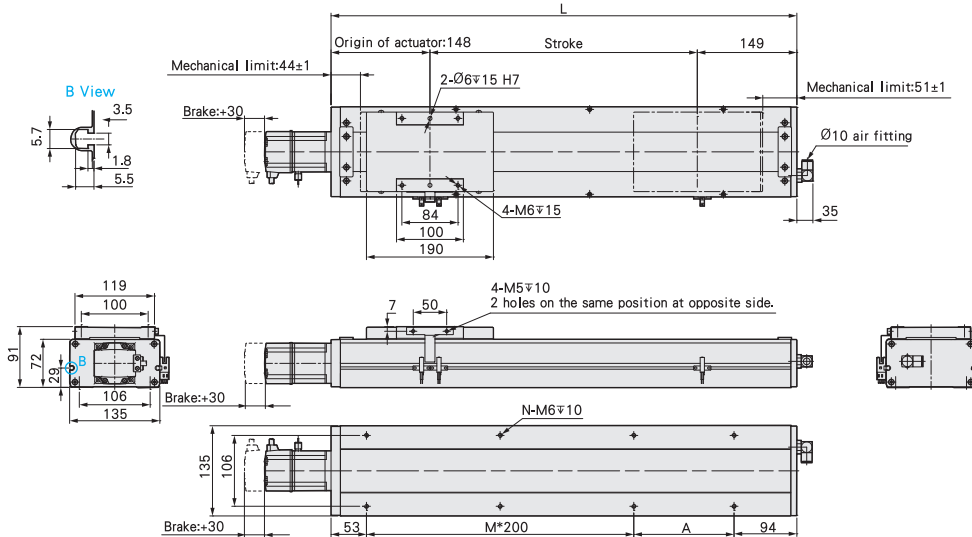


Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.5	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5

Motor Left Side /  
Motor Right Side

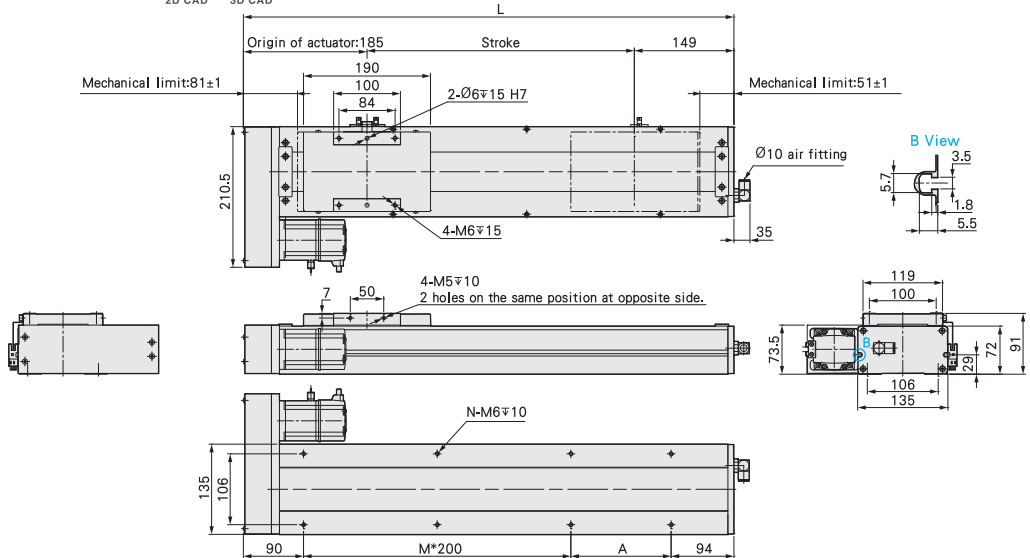
BL

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3

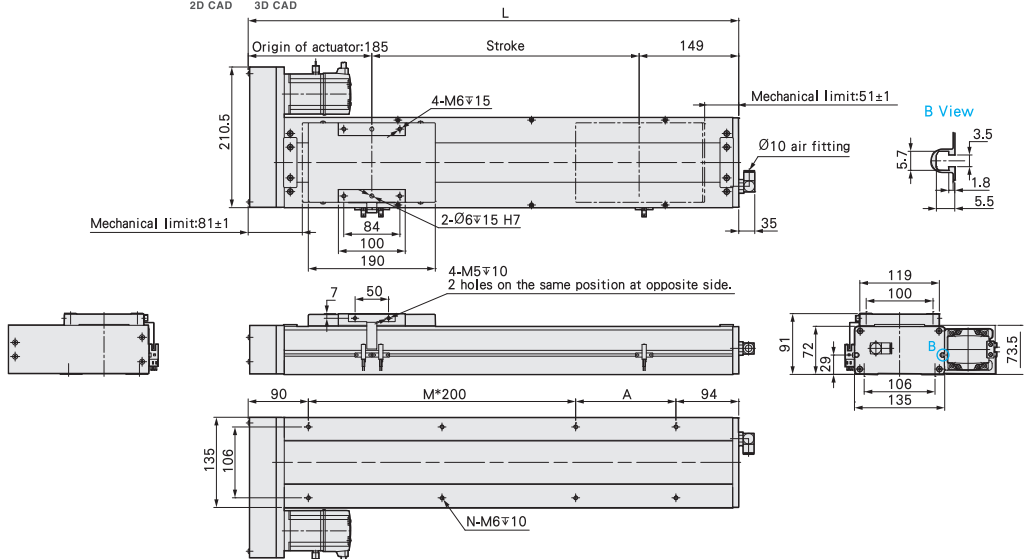
BR

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3

1 axis  
ECH

ECH14

ECH17

ECH22

## Motor Bottom Side

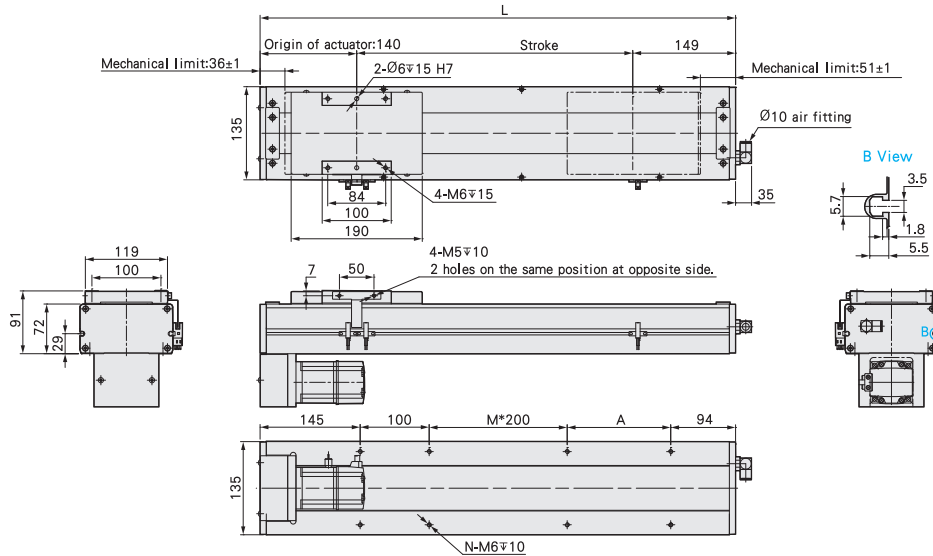


Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	339	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ECH**

ECH14

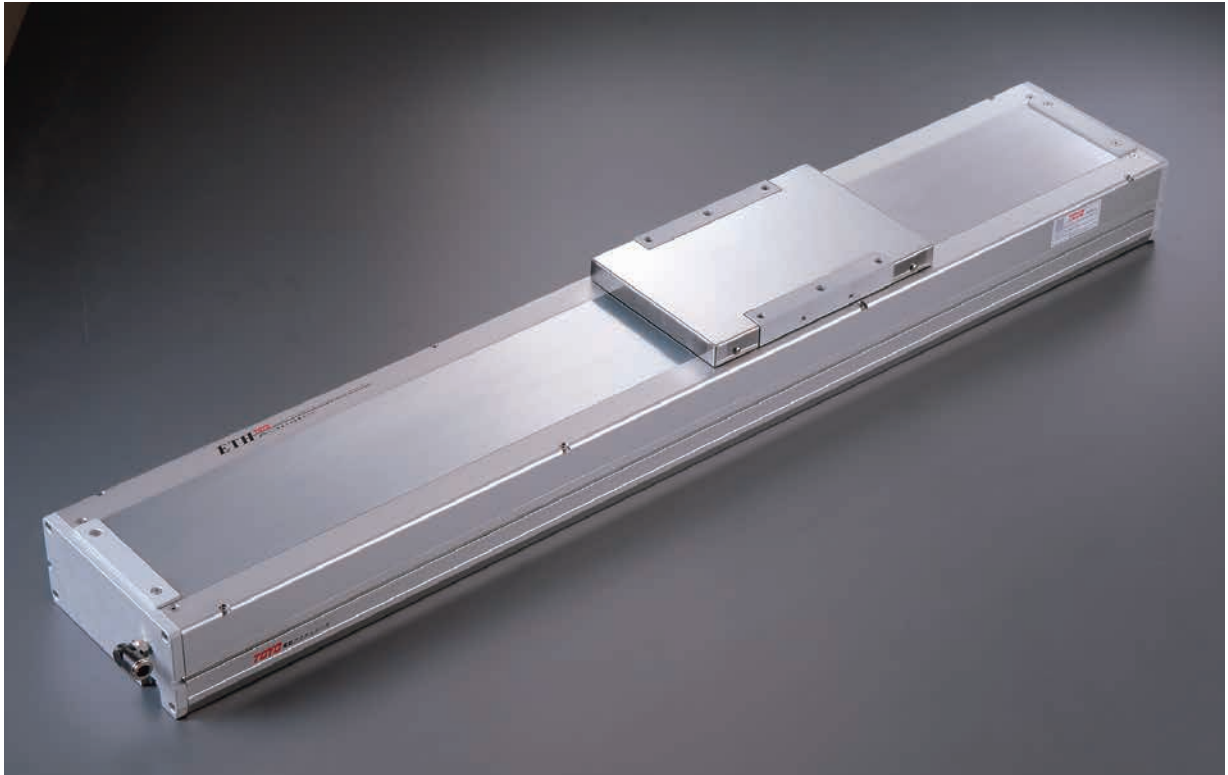
ECH17

ECH22

# ECH17

1-axis

▶ Clean Room ▶ Ball Screw Drive



The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke 1250mm

Maximum Speed 2000mm/s

Motor Output 400W

Ball Screw Ø20mm

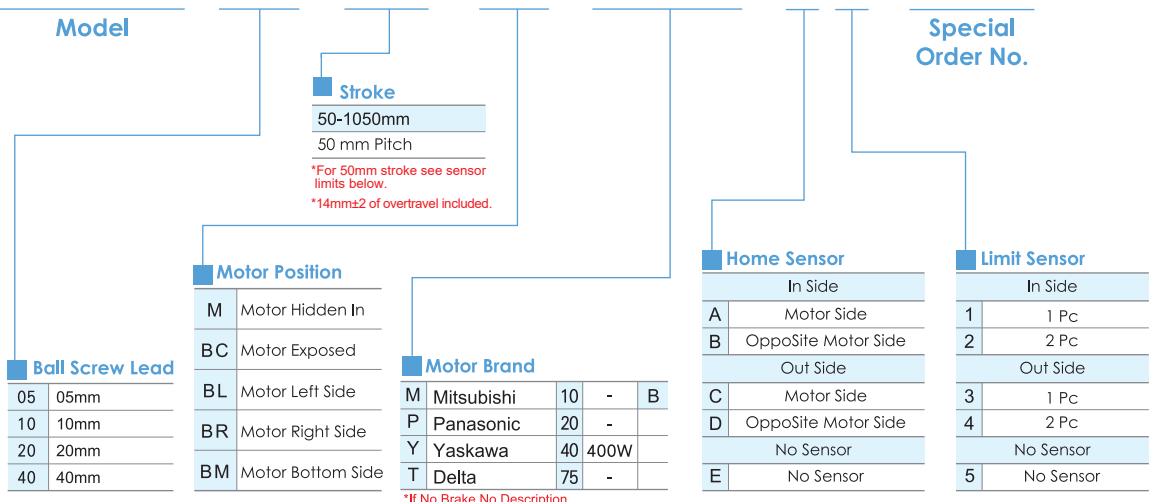
Linear Guide 20X15-2pc

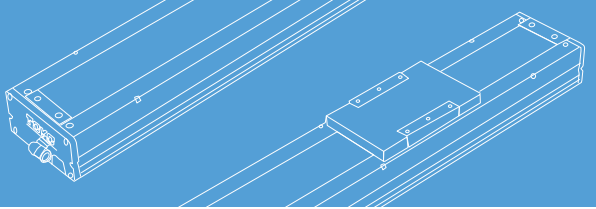
## Ordering Method

# ECH17 - L 5 - 100 - M - M40B - C 4 - 0001

Model

Special Order No.





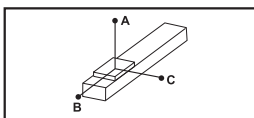
**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)		5	10	20	40	
	Maximum Speed (mm/s)		250	500	1000	2000	
	Max payload	Horizontal (kg)		120	110	75	22
		Vertical (kg)		40	30	14	7
	Rated Thrust (N)			1388	694	347	174
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	6320	5618	5056	3792
			2540 km of travel	1706	1517	1365	1024
		Static Horizontal (kg)	13228				
	Repeatability (mm)			±0.01			
	Allowable Input Torque (rpm)			3000			
	Start Torque (N.cm)			14			
	Lost Motion (mm)			0.1			
	Allowable Input Torque (N.m)			4.5			
	Maximum Acceleration (in/sec)			10			
Friction Coefficient			<0.01				
Stroke Pitch (mm)			50-1250mm/50mm Pitch				

<b>Parts Specs</b>	Ball Screw Lead (mm)		5	10	20	40	
	Ball Screw	Basic dynamic load rating Ca (N)	17795	10295	5414	6406	
		Basic static load rating Coa (N)	45617	22964	10877	15667	
	Linear Guide	Basic dynamic load rating C (KG)	7584				
		Basic static load rating Co (KG)	13228				
	Fixed Bearing	Basic dynamic load rating Cor (N)	3380				
		Basic static load rating Cr (N)	7600				
	AC Servo Motor Output (W)		400				
	Ball Screw Ø (mm)		C7 φ 20				
	High Rigidity Linear Guide (mm)		W20XH15				
	Coupling (mm)		12X14				
	Home Sensor	Outside	EE-SX672(NPN)				
		Built-in	EE-SX674(NPN)				

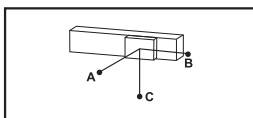
\*When the stroke is over 850mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



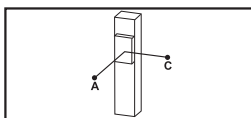
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	70kg	3235	349	408
	90kg	2482	263	306
	120kg	1850	187	217
10 Lead	65kg	1911	338	373
	85kg	1445	248	276
	110kg	1102	182	202
20 Lead	35kg	1666	547	538
	55kg	1030	331	328
	75kg	733	231	230
40 Lead	15kg	1126	740	577
	22kg	755	491	384
	-	-	-	-



(Unit : mm)

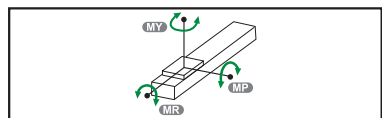
Wall Installation	A	B	C	
5 Lead	75kg	377	322	2988
	95kg	288	246	2333
	120kg	218	187	1850
10 Lead	60kg	408	368	2092
	80kg	296	266	1554
	110kg	202	182	1102
20 Lead	30kg	633	644	1961
	50kg	365	369	1143
	75kg	230	231	733
40 Lead	12kg	729	936	1417
	22kg	384	491	755
	-	-	-	-



(Unit : mm)

Vertical Installation	A	C	
5 Lead	20kg	1368	1368
	30kg	911	911
	40kg	683	683
10 Lead	15kg	1618	1618
	25kg	970	970
	30kg	808	808
20 Lead	10kg	1922	1922
	14kg	1377	1377
	-	-	-
40 Lead	4kg	2377	2377
	7kg	1356	1356
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1032
<b>MP</b>	1034
<b>MR</b>	908

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	339.3
<b>MP</b>	339.3
<b>MR</b>	416.2

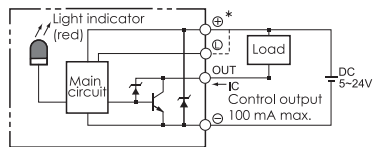
**2540 km of travel** (Unit : N.m)

<b>MY</b>	89.3
<b>MP</b>	89.3
<b>MR</b>	109.5

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
		With Brake (Vertical Type)	400	220	HG-KR43B	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042G1U	MADHT2510
		With Brake (Vertical Type)	400	220	MHMD042G1V	MADHT2510
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B
		With Brake (Vertical Type)	400	220	ECMA-C20604FS	ASD-B20421-B

**Sensor Layout**



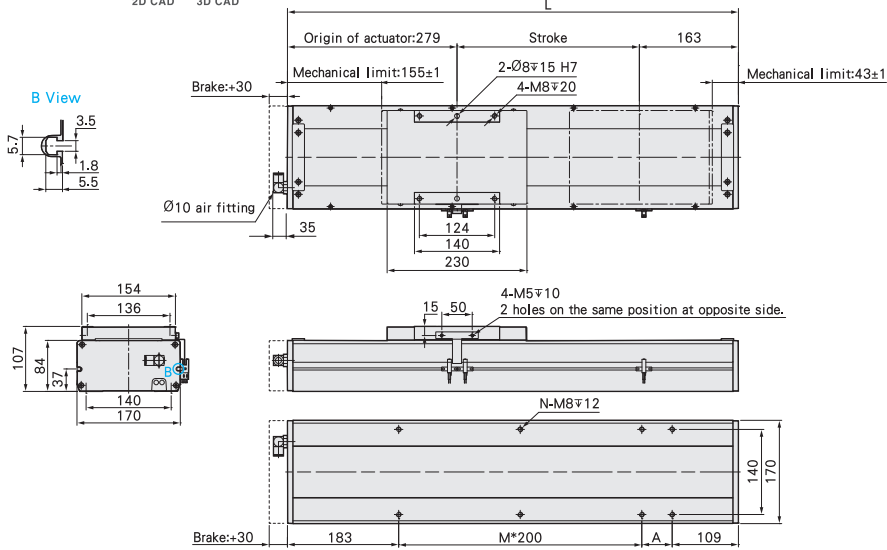
## Motor Hidden In / Motor Exposed

Unit: mm

### M Motor Hidden In



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



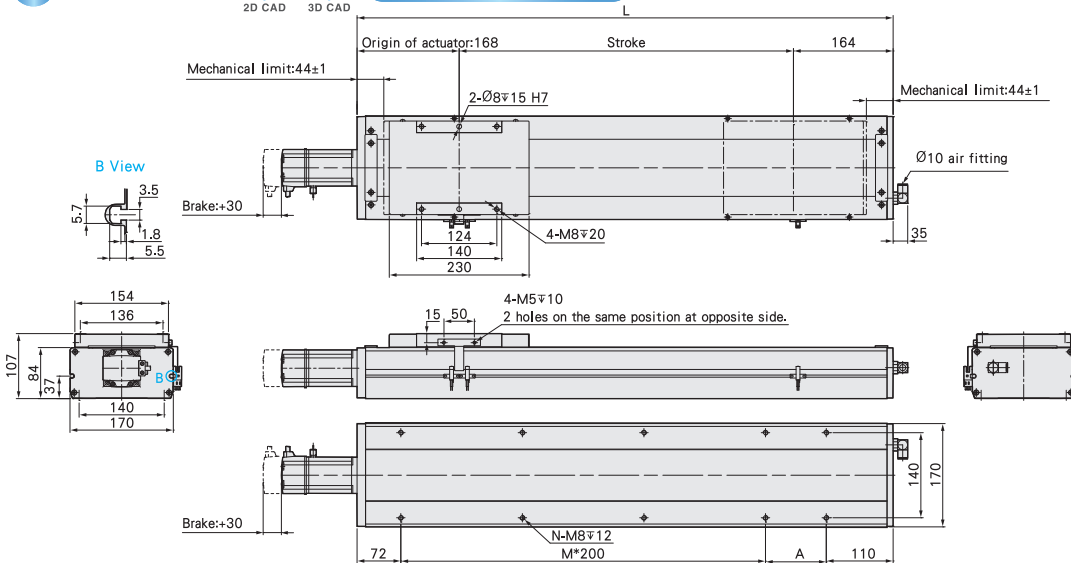
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	492	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342	1392	1442	1492	1542	1592	1642	1692
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	12.44	13.24	14.04	14.84	15.65	16.45	17.26	18.06	18.86	19.67	20.47	21.28	22.08	22.88	23.69	24.49	25.29	26.1	26.9	27.7	28.51	29.31	30.12	30.92	31.72

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	382	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	11.84	12.62	13.4	14.18	14.96	15.74	16.52	17.3	18.08	18.85	19.63	20.41	21.19	21.97	22.75	23.53	24.31	25.09	25.87	26.65	27.43	28.21	28.99	29.77	30.55

**Motor Left Side /  
Motor Right Side**

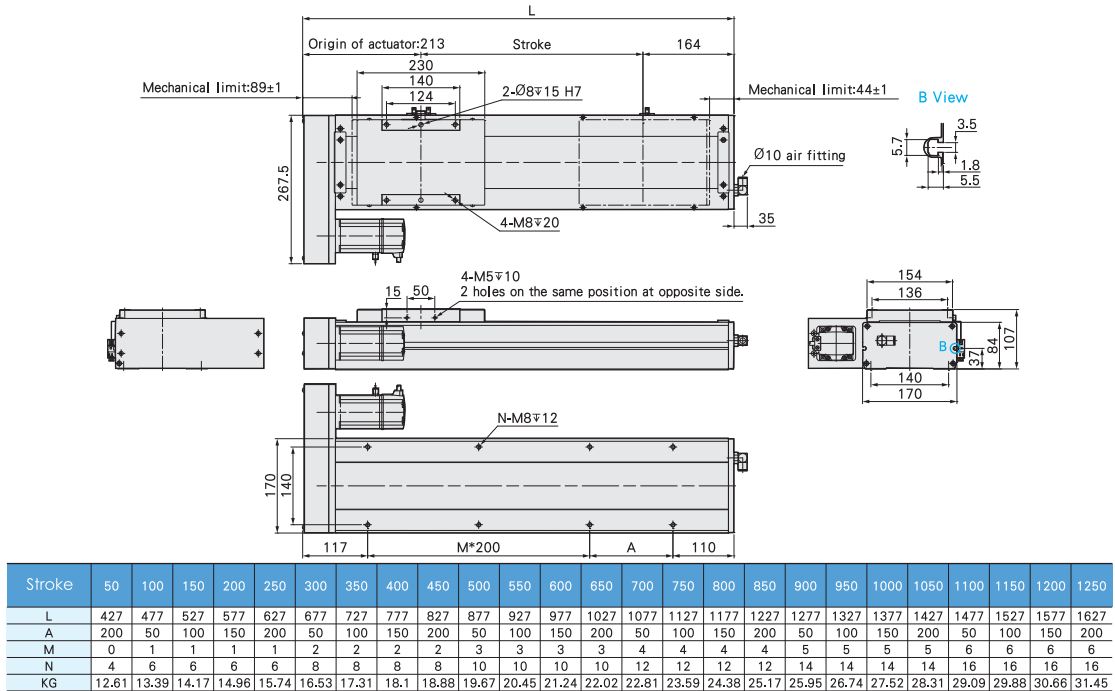
BL

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



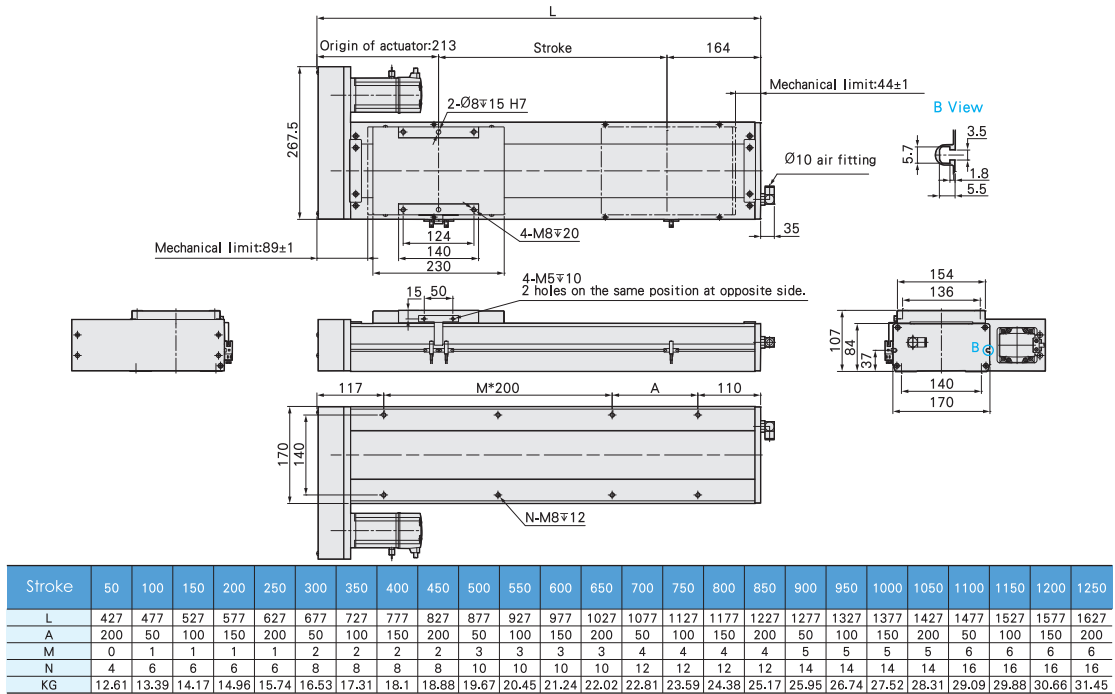
BR

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



## Motor Bottom Side

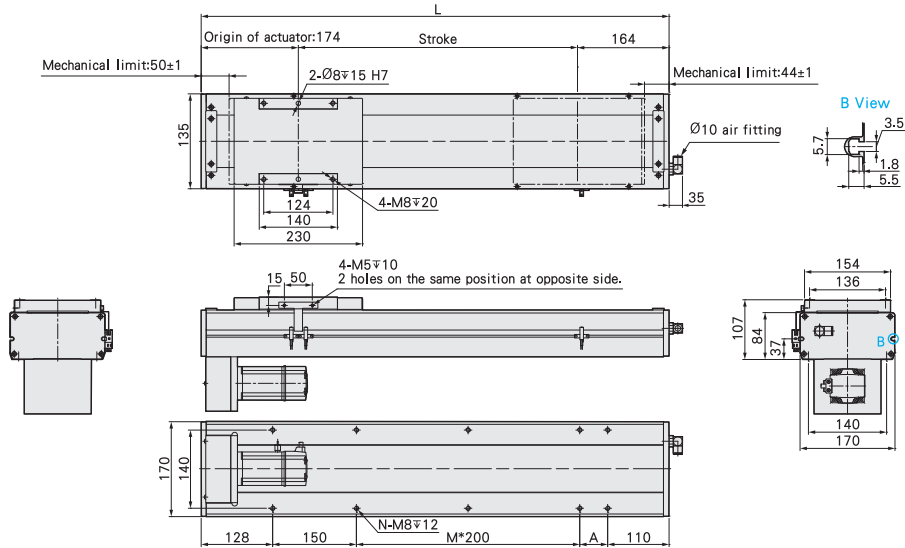
Unit: mm



Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

## MEMO

1 axis  
**ECH**

ECH14

**ECH17**

ECH22

# ECH17

1-axis

▶ Clean Room ▶ Ball Screw Drive



The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke 1250mm

Maximum Speed 2000mm/s

Motor Output 750W

Ball Screw Ø20mm

Linear Guide 20X15-2pc

## Ordering Method

# ECH17 - L 5 - 50 - BC - M75B - C 4 - 0001

Model

Special Order No.

Stroke

50-1250mm  
50 mm Pitch

\*For 50mm stroke see sensor limits below.  
\*14mm±2 of overtravel included.

Ball Screw Lead

05	05mm
10	10mm
20	20mm
40	40mm

Motor Position

BC	Motor Exposed
BL	Motor Left Side
BR	Motor Right Side
BM	Motor Bottom Side

Motor Brand

M	Mitsubishi	10	-	B
P	Panasonic	20	-	
Y	Yaskawa	40	-	
T	Delta	75	750W	

\*If No Brake, No Description.

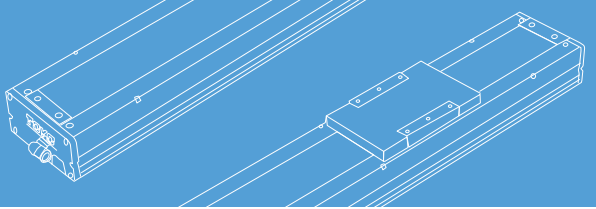
Home Sensor

In Side	
A	Motor Side
B	Opposite Motor Side
Out Side	
C	Motor Side
D	Opposite Motor Side
No Sensor	
E	No Sensor

Limit Sensor

In Side	
1	1 Pc
2	2 Pc
Out Side	
3	1 Pc
4	2 Pc
No Sensor	
5	No Sensor





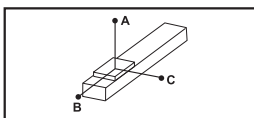
**Specifications**

Actuator Specs	Ball Screw Lead (mm)		5	10	20	40	
	Maximum Speed (mm/s)		250	500	1000	2000	
	Max payload	Horizontal (kg)	120	120	83	43	
		Vertical (kg)	50	40	25	12	
	Rated Thrust (N)		2563	1281	640	320	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	6320	5618	5056	3792
			2540 km of travel	1706	1517	1365	1024
		Static Horizontal (kg)	13228				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		14				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		4.5				
	Maximum Acceleration (in/sec)		10				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		50-1250mm/50mm Pitch					

Parts Specs	Ball Screw Lead (mm)		5	10	20	40	
	Ball Screw	Basic dynamic load rating Ca (N)	17795	10295	5414	6406	
		Basic static load rating Coa (N)	45617	22964	10877	15667	
	Linear Guide	Basic dynamic load rating C (KG)	7584				
		Basic static load rating Co (KG)	13228				
	Fixed Bearing	Basic dynamic load rating Cor (N)	3380				
		Basic static load rating Cr (N)	7600				
	AC Servo Motor Output (W)		750				
	Ball Screw Ø (mm)		C7 φ 20				
	High Rigidity Linear Guide (mm)		W20XH15				
	Coupling (mm)		12X19				
	Home Sensor	Outside	EE-SX672(NPN)				
		Built-in	EE-SX674(NPN)				

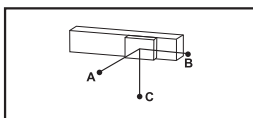
\*When the stroke is over 850mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



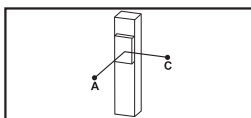
(Unit : mm)

Horizontal Installation	A	B	C	
5 Lead	70kg	3235	349	408
	90kg	2482	263	306
	120kg	1861	187	218
10 Lead	65kg	1911	338	373
	85kg	1445	248	276
	120kg	1000	164	182
20 Lead	35kg	1666	547	538
	55kg	1030	331	328
	83kg	654	206	204
40 Lead	15kg	1126	740	577
	22kg	755	491	384
	43kg	366	231	183



(Unit : mm)

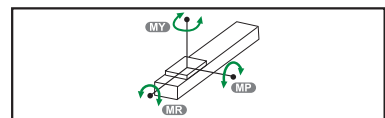
Wall Installation	A	B	C	
5 Lead	75kg	377	322	2988
	95kg	288	246	2333
	120kg	218	187	1850
10 Lead	60kg	408	368	2092
	80kg	296	266	1554
	120kg	182	164	1002
20 Lead	30kg	633	644	1961
	50kg	365	369	1143
	83kg	204	206	656
40 Lead	12kg	729	936	1417
	22kg	384	491	755
	43kg	183	231	366



(Unit : mm)

Vertical Installation	A	C	
5 Lead	20kg	1368	1368
	30kg	911	911
	50kg	546	546
10 Lead	15kg	1618	1618
	25kg	970	970
	40kg	607	607
20 Lead	10kg	1922	1922
	14kg	1377	1377
	25kg	769	769
40 Lead	7kg	1356	1356
	12kg	790	790
	-	-	-

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	2052
<b>MP</b>	2052
<b>MR</b>	1810

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	339.3
<b>MP</b>	339.3
<b>MR</b>	416.2

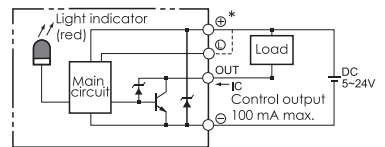
**2540 km of travel** (Unit : N.m)

<b>MY</b>	89.3
<b>MP</b>	89.3
<b>MR</b>	109.5

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082P1S	MCDDT3520
		With Brake (Vertical Type)	750	220	MHMD082P1T	MCDDT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

**Sensor Layout**



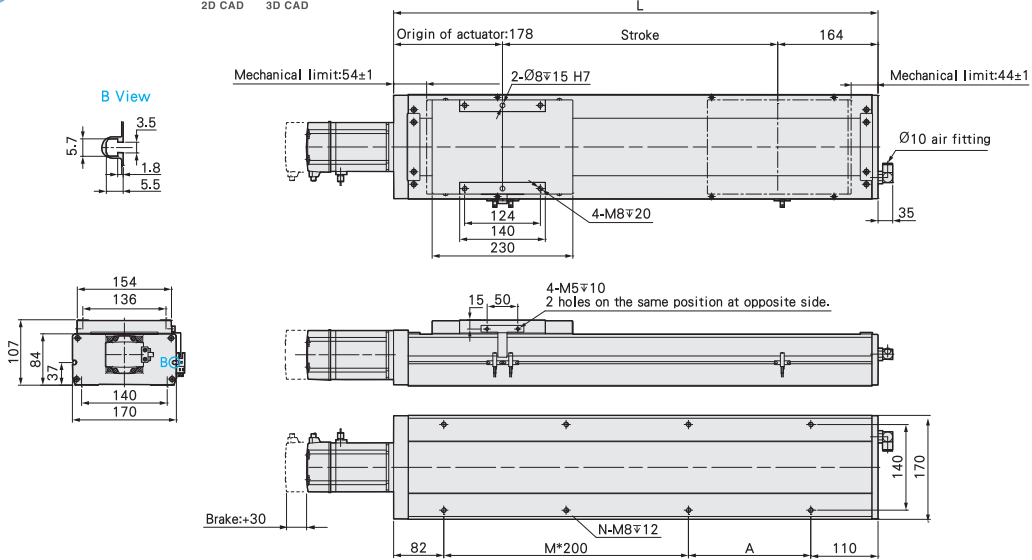
## Motor Exposed / Motor Bottom Side

### BC Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



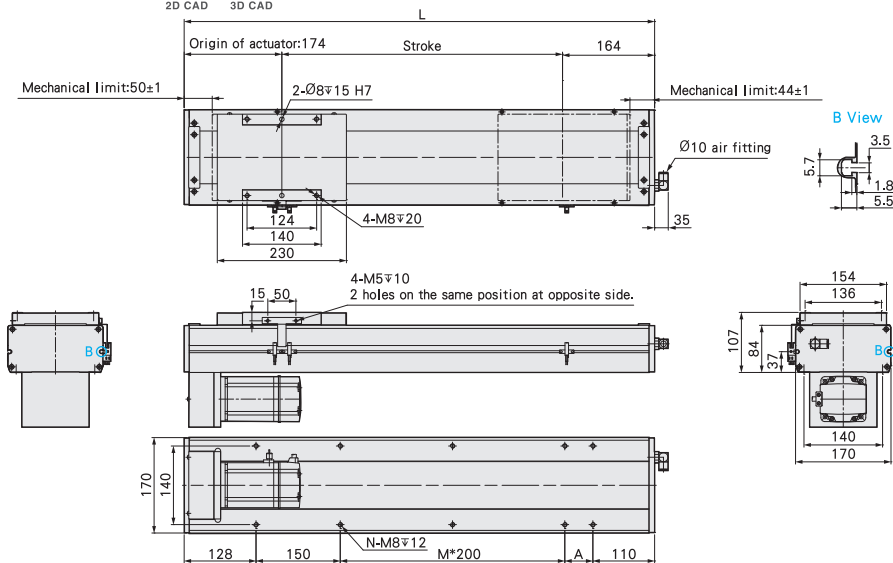
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	392	442	492	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342	1392	1442	1492	1542	1592
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	11.84	12.62	13.4	14.18	14.96	15.74	16.52	17.3	18.08	18.85	19.63	20.41	21.19	21.97	22.75	23.53	24.31	25.09	25.87	26.65	27.43	28.21	28.99	29.77	30.55

### BM Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45

- Structure
- Bull-in-Guideway Ball Screw Type  
GTH / GTY
- Ball Screw Type  
ETH
- Belt Type  
ETB / M
- Clean Room Ball Screw Type  
ECH
- Clean Room Belt Type  
ECB
- Reference

**Motor Left Side / Motor Right Side**

BL

**Motor Left Side**

2D CAD

3D CAD

• Download CAD data at [www.toyorobot.com](http://www.toyorobot.com) •

Unit : mm

Origin of actuator: 213    Stroke: 164    Mechanical limit: 44±1

267.5    230    140    124    140    35    Ø10 air fitting

4-M8 $\nabla$ 20    2- $\nabla$ 8 $\nabla$ 15 H7    B View

15    50    4-M5 $\nabla$ 10    2 holes on the same position at opposite side.

170    140    N-M8 $\nabla$ 12    154    136    107

117    M\*200    A    110    140    170

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45

BR

**Motor Right Side**

2D CAD

3D CAD

• Download CAD data at [www.toyorobot.com](http://www.toyorobot.com) •

Unit : mm

Origin of actuator: 213    Stroke: 164    Mechanical limit: 44±1

267.5    230    140    124    140    35    Ø10 air fitting

4-M8 $\nabla$ 20    B View

15    50    4-M5 $\nabla$ 10    2 holes on the same position at opposite side.

170    140    N-M8 $\nabla$ 12    154    136    107

117    M\*200    A    110    140    170

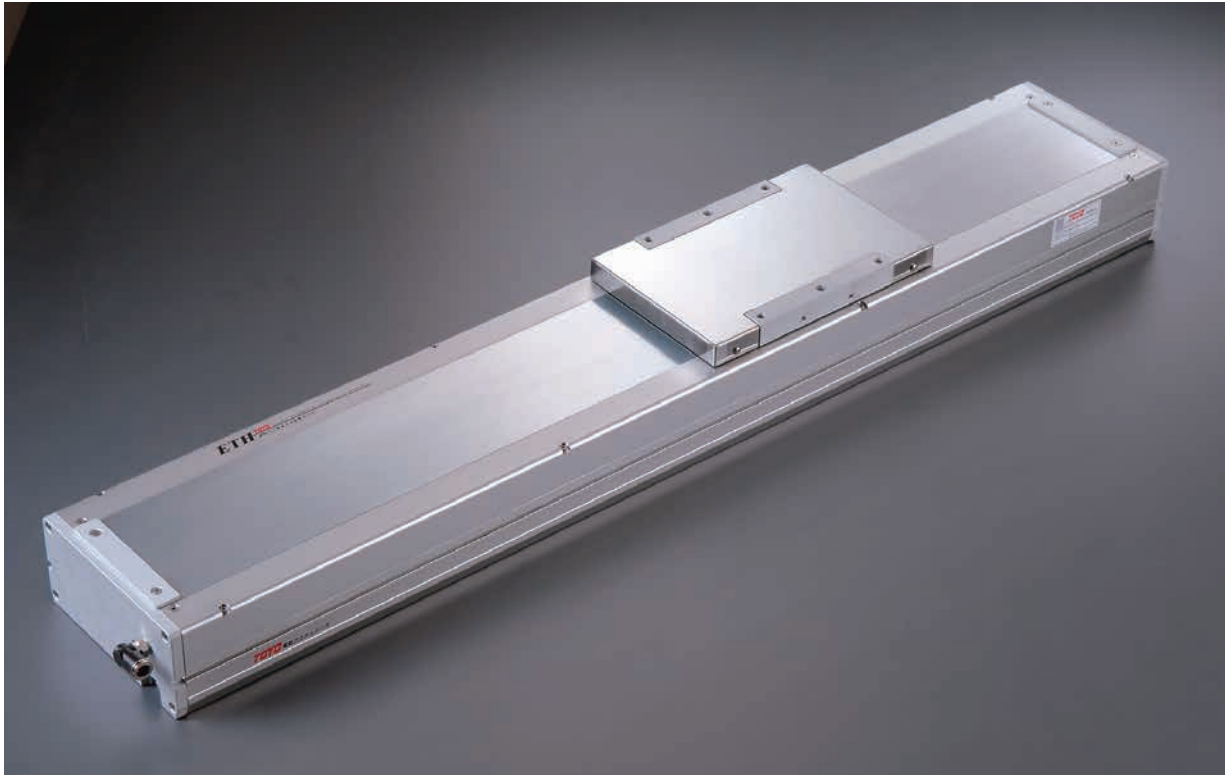
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45

- 1 axis  
ECH
- ECH14
- ECH17
- ECH22

# ECH22

1-axis

▶ Clean Room ▶ Ball Screw Drive

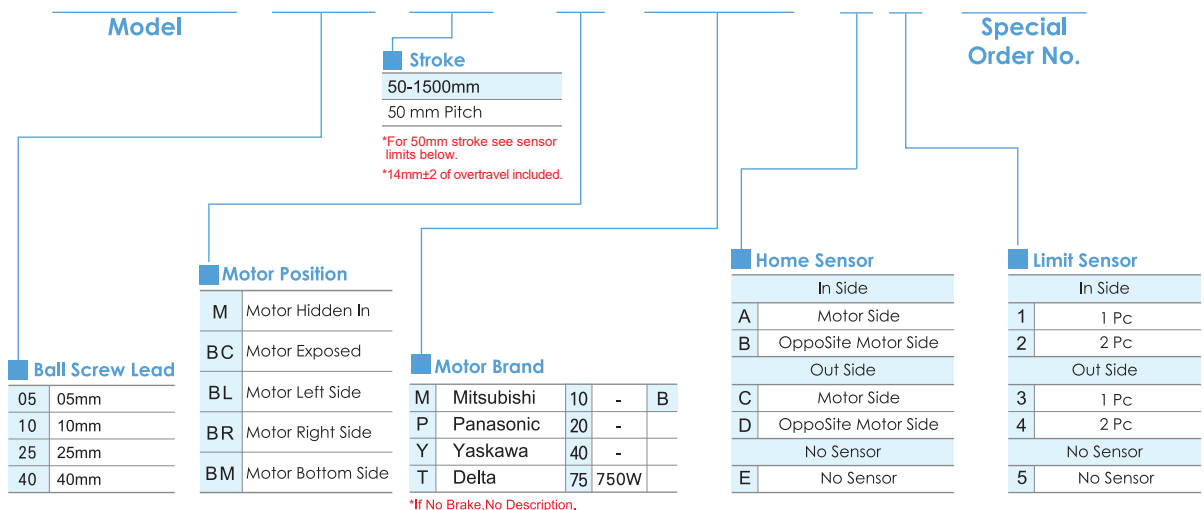


The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke **1500mm**
Maximum Speed **2000mm/s**
Motor Output **750W**
Ball Screw **Ø25mm**
Linear Guide **23X18-2pc**

## Ordering Method

# ECH22 - L 10 - 50 - M - M75B - C 4 - 0001



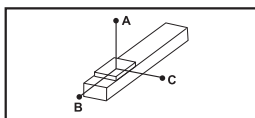
**Specifications**

<b>Actuator Specs</b>	Ball Screw Lead (mm)	5	10	20	40		
	Maximum Speed (mm/s)	250	500	1250	2000		
	Max payload	Horizontal (kg)	150	150	105	43	
		Vertical (kg)	55	45	20	12	
	Rated Thrust (N)		2563	1281	640	320	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	8603	7647	6073	5162
			2540 km of travel	2323	2065	1640	1394
		Static Horizontal (kg)	18012				
	Repeatability (mm)		±0.01				
	Allowable Input Torque (rpm)		3000				
	Start Torque (N.cm)		17				
	Lost Motion (mm)		0.1				
	Allowable Input Torque (N.m)		8.4				
	Maximum Acceleration (in/sec)		10				
Friction Coefficient		<0.01					
Stroke Pitch (mm)		50-1500mm/50mm Pitch					

<b>Parts Specs</b>	Ball Screw Lead (mm)	5	10	20	40	
	Ball Screw	Basic dynamic load rating Ca (N)	11116	16069	5948	6406
		Basic static load rating Coa (N)	27338	45450	13497	15667
	Linear Guide	Basic dynamic load rating C (KG)	10324			
		Basic static load rating Co (KG)	18012			
	Fixed Bearing	Basic dynamic load rating Cor (N)	8240			
		Basic static load rating Cr (N)	17900			
	AC Servo Motor Output (W)		750			
	Ball Screw Ø (mm)		C7 φ 25		C7φ20	
	High Rigidity Linear Guide (mm)		W23XH18			
	Coupling (mm)		17X19		12X19	
	Home Sensor	Outside	EE-SX672(NPN)			
		Built-in	EE-SX674(NPN)			

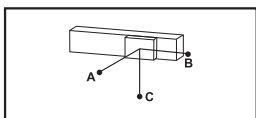
\*When the stroke is over 900mm, ball screw whipping may occur. We recommend lowering the working speed under these circumstances.  
\*Acceleration and deceleration value is set at 0.2 seconds.

**Allowable Overhang**



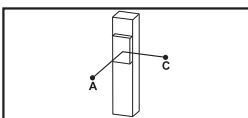
(Unit : mm)

Horizontal Installation	A	B	C
5 Lead	100kg	5000	633 557
	125kg	3880	491 431
	150kg	3357	396 347
10 Lead	100kg	3220	563 474
	125kg	2554	434 367
	150kg	2113	349 295
20 Lead	65kg	1522	614 458
	85kg	1136	451 336
	105kg	893	350 262
40 Lead	18kg	2445	1616 1052
	30kg	1436	938 613
	43kg	978	630 412



(Unit : mm)

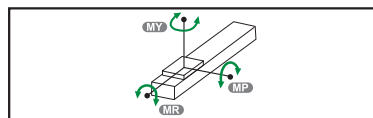
Wall Installation	A	B	C
5 Lead	110kg	500	569 4500
	130kg	412	469 3711
	150kg	347	396 3357
10 Lead	110kg	427	503 2900
	130kg	351	414 2444
	150kg	295	349 2113
20 Lead	70kg	420	564 1404
	90kg	315	420 1066
	105kg	262	350 893
40 Lead	15kg	1272	1955 2948
	24kg	778	1190 1813
	43kg	412	630 978



(Unit : mm)

Vertical Installation	A	C
5 Lead	30kg	2355 2355
	40kg	1768 1768
	55kg	1288 1288
10 Lead	25kg	2505 2505
	35kg	1795 1795
	45kg	1396 1396
20 Lead	15kg	2711 2711
	20kg	2033 2033
	-	- -
40 Lead	7kg	3511 3511
	12kg	2055 2055
	-	- -

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	2052
<b>MP</b>	2052
<b>MR</b>	1810

\*The torque value in the chart indicates the center of gravity.  
\*The operational life of this product is 10,000km when used under the above specified conditions.  
\*This information is not for ceiling-mount inverse use. Contact us for more details if you wish to apply ceiling-mount inverse use.

**Dynamic Loading moment**

**50 km of travel** (Unit : N.m)

<b>MY</b>	878.7
<b>MP</b>	878.7
<b>MR</b>	799.3

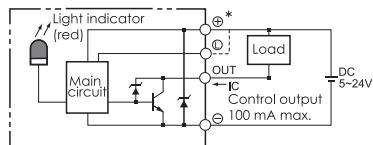
**2540 km of travel** (Unit : N.m)

<b>MY</b>	231.2
<b>MP</b>	231.2
<b>MR</b>	210.4

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
		With Brake (Vertical Type)	750	220	HG-KR73B	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082G1U	MCDHT3520
		With Brake (Vertical Type)	750	220	MHMD082G1V	MCDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C20807ES	ASD-B20721-B
		With Brake (Vertical Type)	750	220	ECMA-C20807FS	ASD-B20721-B

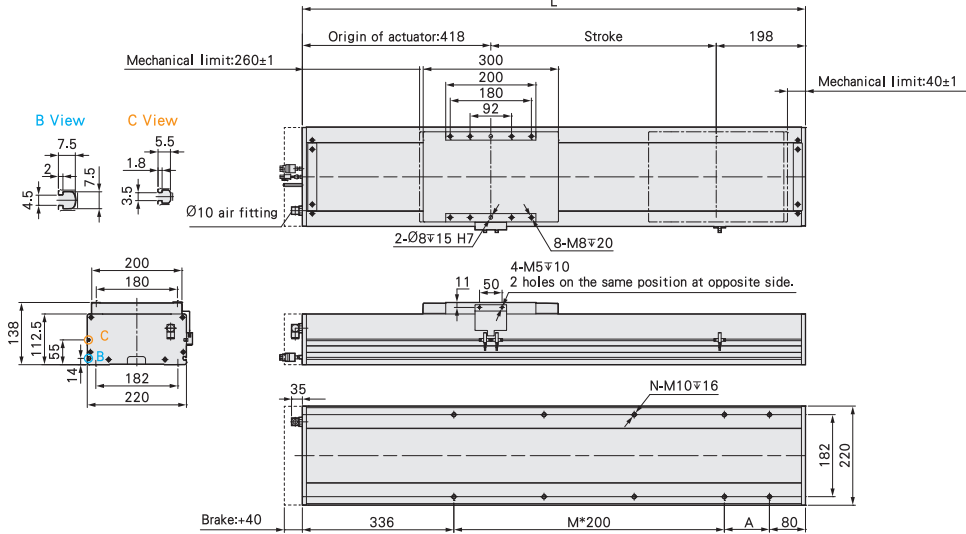
**Sensor Layout**



## Motor Hidden In / Motor Exposed

Unit: mm

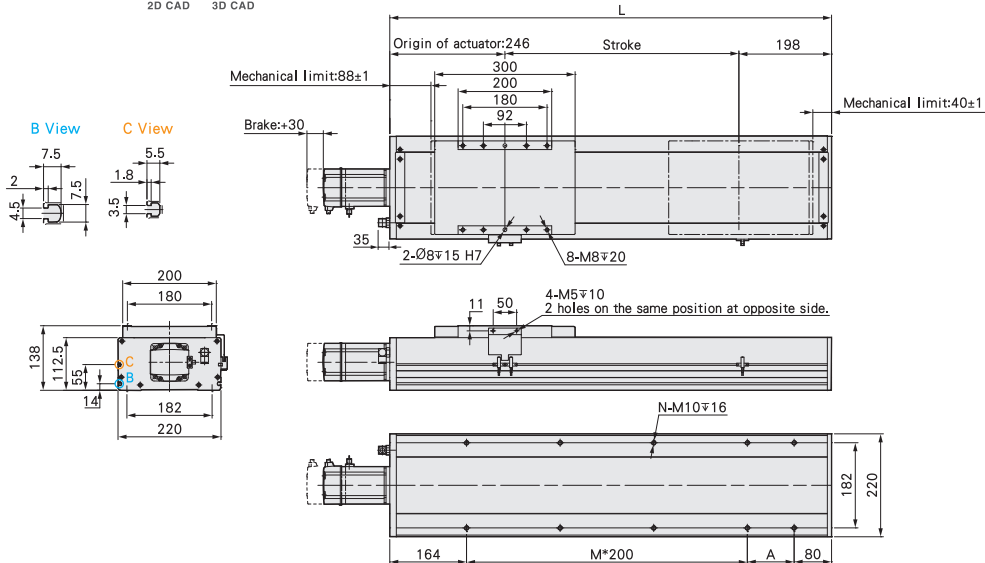
**M** Motor Hidden In   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	29.75	31.22	32.69	34.16	35.63	37.1	38.57	40.04	41.51	42.98	44.45	45.92	47.39	48.86	50.33	51.8	53.27	54.74	56.21	57.68	59.15	60.62	62.09	63.56	65.03	66.5	67.97	69.44	70.91	72.38

**BC** Motor Exposed   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	494	544	594	644	694	744	794	844	894	944	994	1044	1094	1144	1194	1244	1294	1344	1394	1444	1494	1544	1594	1644	1694	1744	1794	1844	1894	1944
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	27.5	28.96	30.42	31.88	33.34	34.8	36.26	37.72	39.18	40.64	42.1	43.56	45.02	46.48	47.94	49.4	50.86	52.32	53.78	55.24	56.7	58.16	59.62	61.08	62.54	64	65.46	66.92	68.38	69.84

- Structure
- Built-in Guideway Ball Screw Type  
GTH / GTY
- Ball Screw Type  
ETH
- Belt Type  
ETB / M
- Clean Room Ball Screw Type  
ECH
- Clean Room Belt Type  
ECB
- Reference

## Motor Left Side / Motor Right Side

BL

### Motor Left Side

2D CAD
 3D CAD
Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

Origin of actuator: 272    Stroke    227

Mechanical limit: 115±1    Mechanical limit: 70±1

200    180    300    200    180    92

8-M8 $\nabla$ 20    2- $\text{\O}8\nabla$ 15 H7

4-M5 $\nabla$ 10  
2 holes on the same position at opposite side.

11    50

$\text{\O}10$  air fitting

B View    C View

7.5    5.5  
2    1.8  
4.5    7.5    3.5

200    180    182    220    14  
97.5    317.5

190    M\*200    A    109    182    220

N-M10 $\nabla$ 16

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	66.56	68.02	69.48	70.94

BR

### Motor Right Side

2D CAD
 3D CAD
Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm

2- $\text{\O}8\nabla$ 15 H7    8-M8 $\nabla$ 20

200    180    92    180    200    300

Mechanical limit: 115±1    Mechanical limit: 70±1

Origin of actuator: 272    Stroke    227

$\text{\O}10$  air fitting

B View    C View

7.5    5.5  
2    1.8  
4.5    7.5    3.5

200    180    182    220    14  
97.5    317.5

190    M\*200    A    109    182    220

N-M10 $\nabla$ 16

4-M5 $\nabla$ 10  
2 holes on the same position at opposite side.

11    50

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	66.56	68.02	69.48	70.94

- 1 axis  
ECH
- ECH14
- ECH17
- ECH22

## Motor Bottom Side

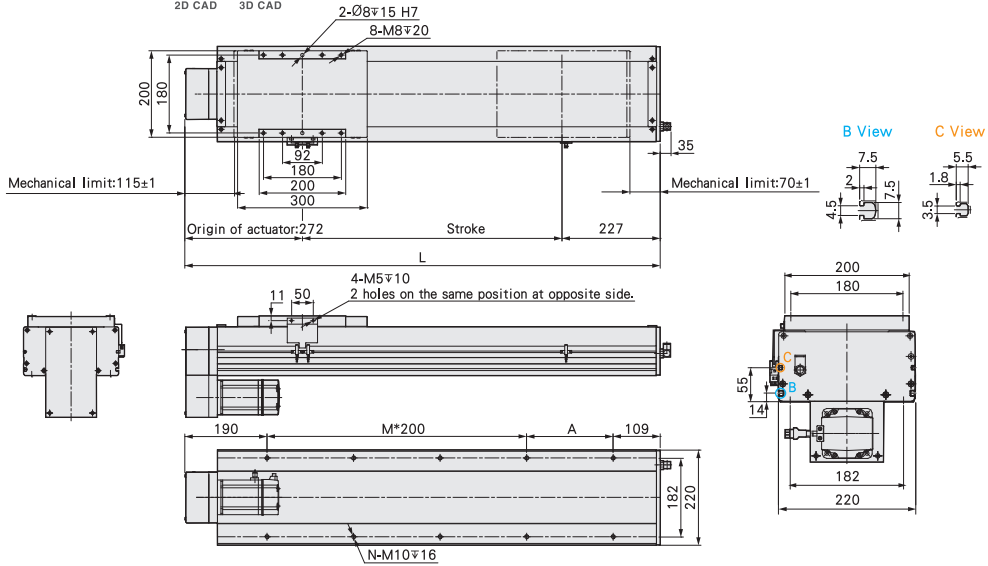


Motor Bottom Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999	
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	6	7	7	7	8	8	
N	6	6	6	6	8	8	8	8	8	10	10	10	12	12	12	12	14	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	66.56	68.02	69.48	70.94	



Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

1 axis  
**ECH**

ECH14

ECH17

ECH22

## MEMO

# Electric Actuator ECB Series

## Clean Room/Belt Type

### CONTENTS

#### Clean Room/Belt Type

**MEDIUM**

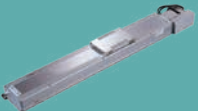
ECB10



Width 102mm  
Max. stroke 2550mm .....413  
Max. payload 10kg

**MEDIUM**

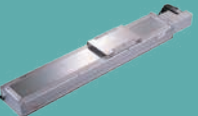
ECB14



Width 135mm  
Max. stroke 3050mm .....419  
Max. payload 25kg

**LARGE**

ECB17

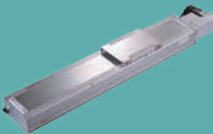


Width 170mm  
Max. stroke 4050mm .....425  
Max. payload 45kg



**LARGE**

ECB22



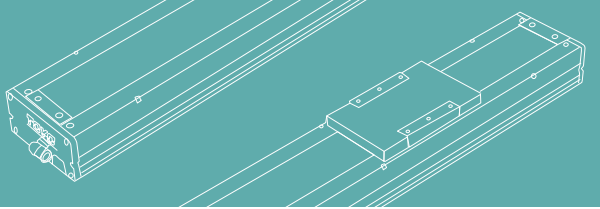
Width 220mm  
Max. stroke 3500mm .....431  
Max. payload 85kg



# ECB10

1-axis

▶ Clean Room ▶ Belt Drive



Structure
Built-in Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

Stroke(mm) & Maximum Speed(mm/s) <sup>*2</sup>		Speed	Page																										
Stroke	50	300	450	600	800	900	1050	1200	1350	1500	1650	1800	1950	2100	2150	2300	2550	2600	2750	3050	3150	3400	3500	3600	3750	3900	4050		
					1600																								413
								2000																					419
										2000																			425
											2000																		431

# ECB10 1-axis

▶ Clean Room ▶ Belt Drive

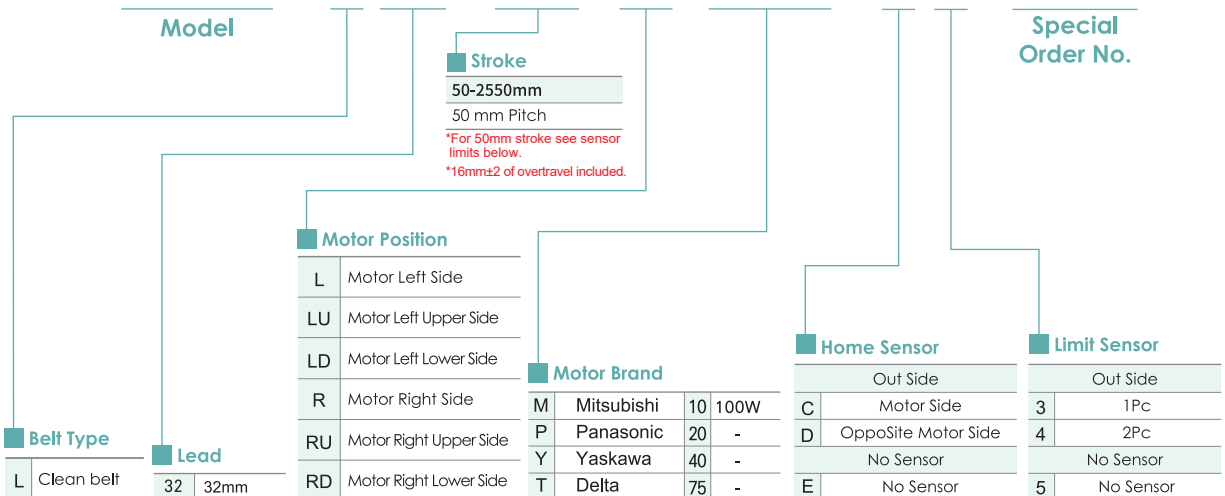


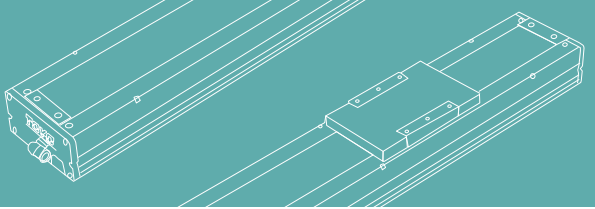
The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke	2550mm	Maximum Speed	1600mm/s	Motor Output	100W	Belt Width	15 mm	Linear Guide	20X18-1pc
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## Ordering Method

# ECB10 - L 32 - 100 - L - M 10 - C 4 - 0001





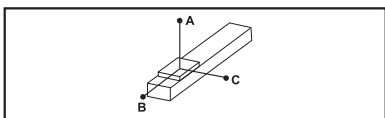
**Specifications**

Actuator Specs	Belt Lead (mm)		32	
	Maximum Speed (mm/s)		1600	
	Max payload	Horizontal (kg)	10	
		Vertical (kg)	-	
	Rated Thrust (N)		61	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	1181
			2540 km of travel	319
		Static Horizontal (kg)		3891
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		1.1	
	Maximum Acceleration (in/sec)		5	
	Friction Coefficient		<0.01	
Stroke Pitch (mm)		50-2550mm / 50mm Pitch		

Parts Specs	Belt Lead (mm)		32
	Belt	Standard tension value Tis (N)	99
		Maximum value of allowed tension Timax (N)	195
	Linear Guide	Basic dynamic load rating C (KG)	2125
		Basic static load rating Co (KG)	3891
	Fixed Bearing	Basic dynamic load rating Cor (N)	4780
		Basic static load rating Cr (N)	10200
	AC Servo Motor Output (W)		100
	Belt Width (mm)		15
	High Rigidity Linear Guide (mm)		W20XH18
	Home Sensor	Outside	EE-SX672(NPN)

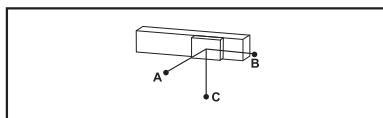
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

Horizontal Installation	A	B	C
5kg	495	152	128
8kg	301	91	77
10kg	236	71	60



(Unit : mm)

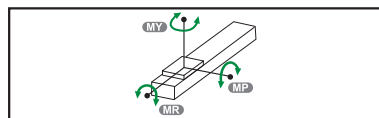
Wall Installation	A	B	C
4kg	162	192	625
7kg	89	106	347
10kg	60	71	236

\*The torque value in the chart indicate the center of gravity.  
 \*Operation life is 10,000km when the product is using under the specified conditions.  
 \*The steel stripe cover may deformed when the actuator length is over 1000mm. Horizontal application is recommend.  
 \*Data information is not for ceiling-mount inverse use.Contact us for the details if you want to apply ceiling-mount inverse usage.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR13	MR-J4-10A
Panasonic	P	No Brake (Horizontal Type)	100	220	MSMD012G1U	MADHT1505
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20401ES	ASD-B20121-B

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	110
<b>MP</b>	110
<b>MR</b>	120

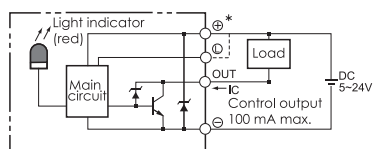
**Dynamic Loading moment**

50 km of travel		(Unit : N.m)
<b>MY</b>	19	
<b>MP</b>	19	
<b>MR</b>	20	

2540 km of travel		(Unit : N.m)
<b>MY</b>	5	
<b>MP</b>	5	
<b>MR</b>	5	

**Sensor Layout**



# ECB10

1-axis

► Clean Room ► Belt Drive

Motor Left Side /  
Motor Right Side

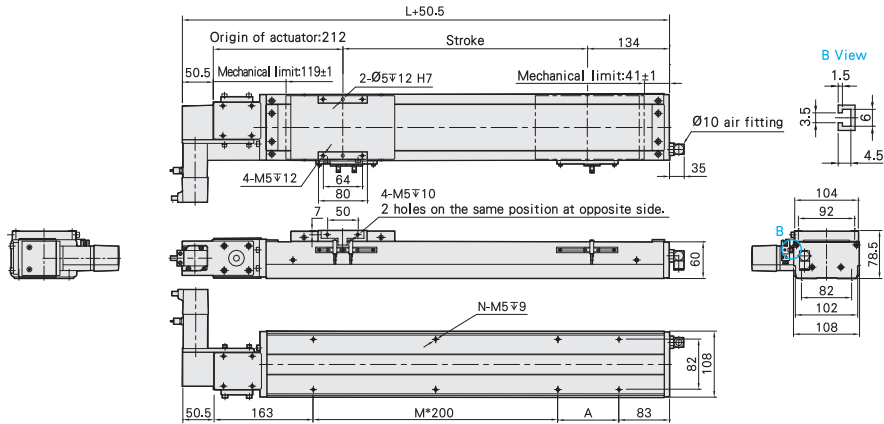
L

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94

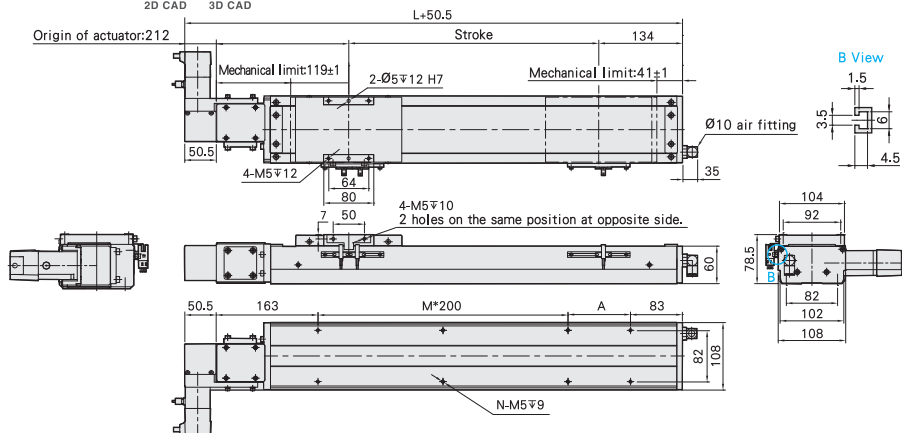
R

Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

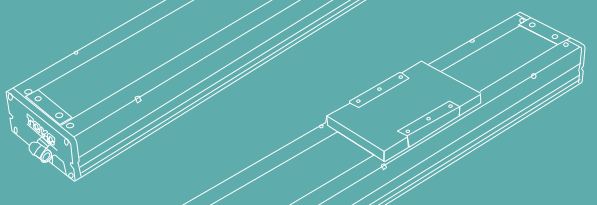


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94





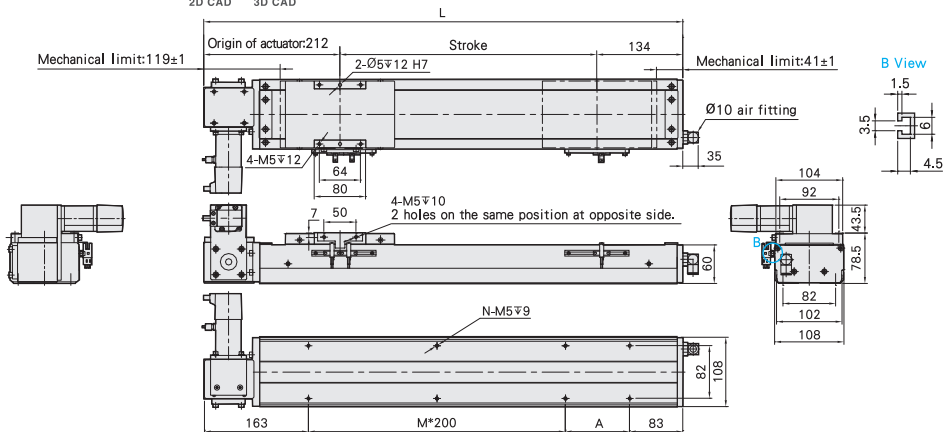
Motor Left Upper Side /  
Motor Right Upper Side

**LU** Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

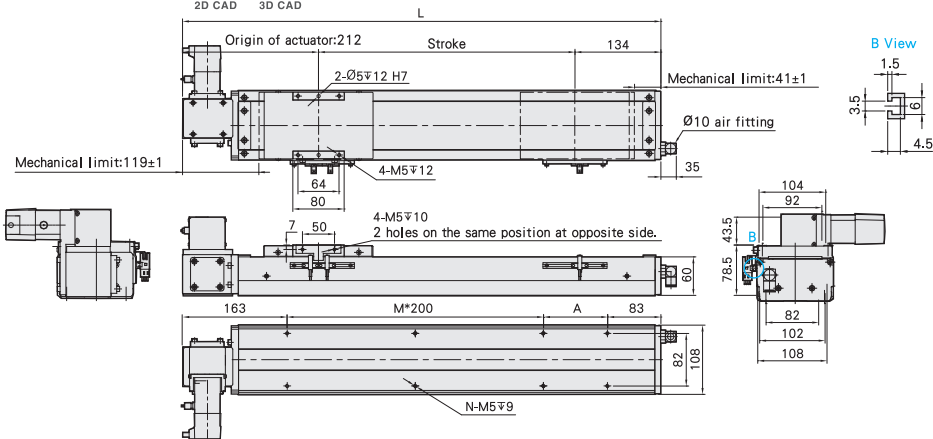
Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94

**RU** Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94

# ECB10

1-axis

► Clean Room ► Belt Drive

Motor Left Lower Side /  
Motor Right Lower Side

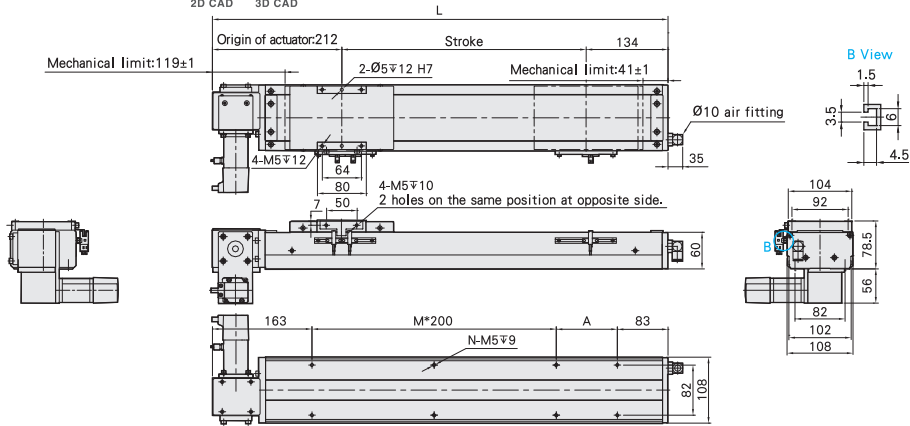
LD

Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94

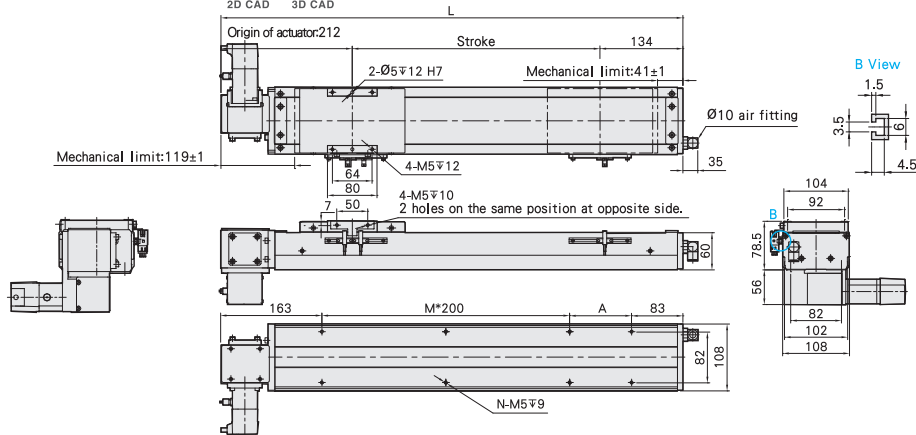
RD

Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

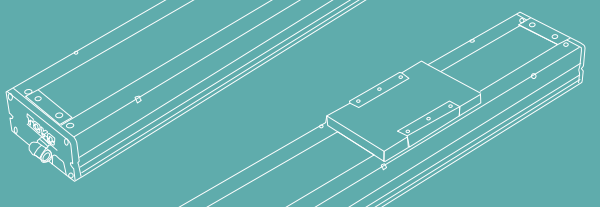
Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	396	446	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496	1546	1596	1646
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
KG	7.87	8.3	8.73	9.15	9.57	10	10.42	10.84	11.26	11.69	12.11	12.53	12.96	13.38	13.8	14.23	14.65	15.07	15.49	15.92	16.34	16.76	17.18	17.6	18.02	18.44

Stroke	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550
L	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	18.86	19.28	19.7	20.12	20.54	20.96	21.38	21.8	22.22	22.4	23.06	23.48	23.9	24.32	24.74	25.16	25.58	26	26.42	26.84	27.26	27.68	28.1	28.52	28.94



Structure
Built-in Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

**MEMO**

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1 axis <b>ECB</b>
ECB10
ECB14
ECB17
ECB22

# ECB10

1-axis

▶ Clean Room ▶ Belt Drive

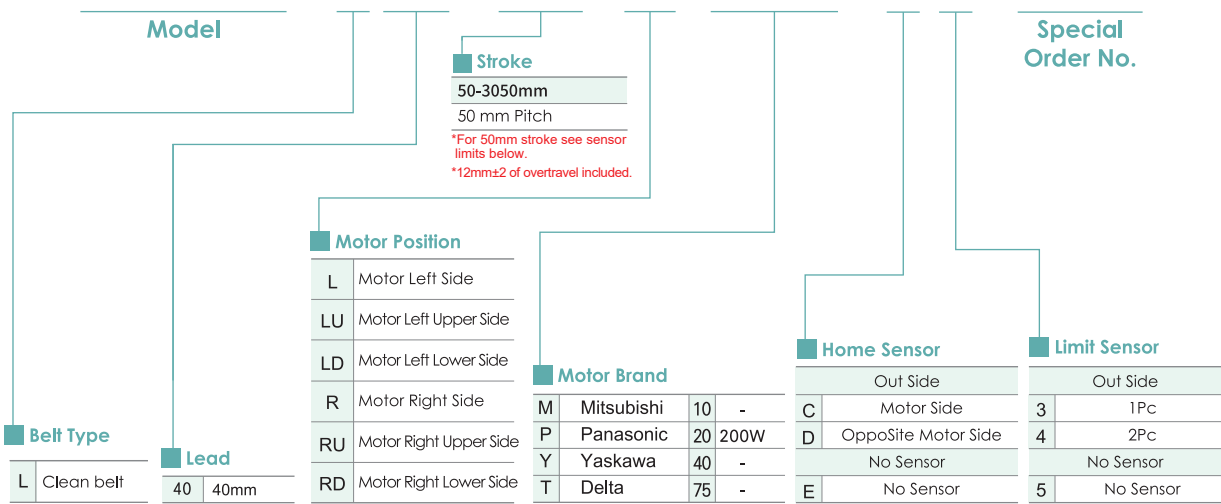


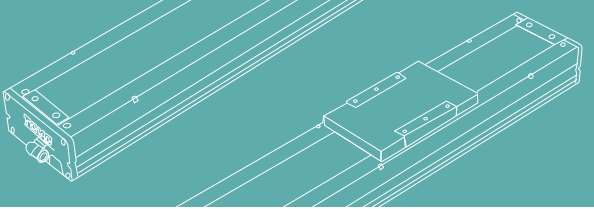
The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke **3050mm**
Maximum Speed **2000mm/s**
Motor Output **200W**
Belt Width **22 mm**
Linear Guide **15X12.5-2pc**

## Ordering Method

# ECB14 - L 40 - 100 - L - M 20 - C 4 - 0001





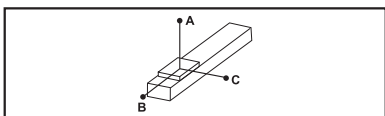
**Specifications**

Actuator Specs	Belt Lead (mm)		40	
	Maximum Speed (mm/s)		2000	
	Max payload	Horizontal (kg)	25	
		Vertical (kg)	-	
	Rated Thrust (N)		100	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	2412
			2540 km of travel	651
		Static Horizontal (kg)	8824	
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		2.2	
	Maximum Acceleration (in/sec)		5	
Friction Coefficient		<0.01		
Stroke Pitch (mm)		50-3050mm / 50mm Pitch		

Parts Specs	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	137
		Maximum value of allowed tension Timax (N)	261
	Linear Guide	Basic dynamic load rating C (KG)	4824
		Basic static load rating Co (KG)	8824
	Fixed Bearing	Basic dynamic load rating Cor (N)	10000
		Basic static load rating Cr (N)	18800
	AC Servo Motor Output (W)		200
	Belt Width (mm)		22
	High Rigidity Linear Guide (mm)		W15XH12.5
Home Sensor	Outside	EE-SX672(NPN)	

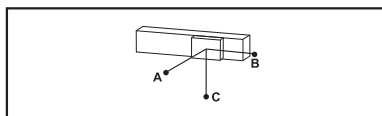
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

Horizontal Installation	A	B	C
10kg	1794	688	538
20kg	858	324	253
25kg	670	251	197



(Unit : mm)

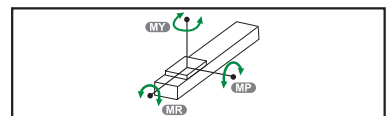
Wall Installation	A	B	C
15kg	348	446	1170
18kg	285	365	961
25kg	197	251	670

\*The torque value in the chart indicate the center of gravity.  
 \*Operation life is 10,000km when the product is using under the specified conditions.  
 \*The steel stripe cover may deformed when the actuator length is over 1000mm. Horizontal application is recommend.  
 \*Data information is not for ceiling-mount inverse use.Contact us for the details if you want to apply ceiling-mount inverse usage.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	100	220	HG-KR23	MR-J4-20A
Panasonic	P	No Brake (Horizontal Type)	100	220	MHMD022G1U	MADHT1507
Delta	T	No Brake (Horizontal Type)	100	220	ECMA-C20602ES	ASD-B20221-B

**Static Loading moment**



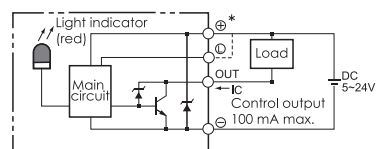
(Unit : N.m)

MY	551
MP	552
MR	485

**Dynamic Loading moment**

50 km of travel		(Unit : N.m)
MY	210	
MP	210	
MR	209	
2540 km of travel		(Unit : N.m)
MY	55	
MP	55	
MR	55	

**Sensor Layout**



# ECB10

1-axis

Clean Room Belt Drive

Motor Left Side /  
Motor Right Side

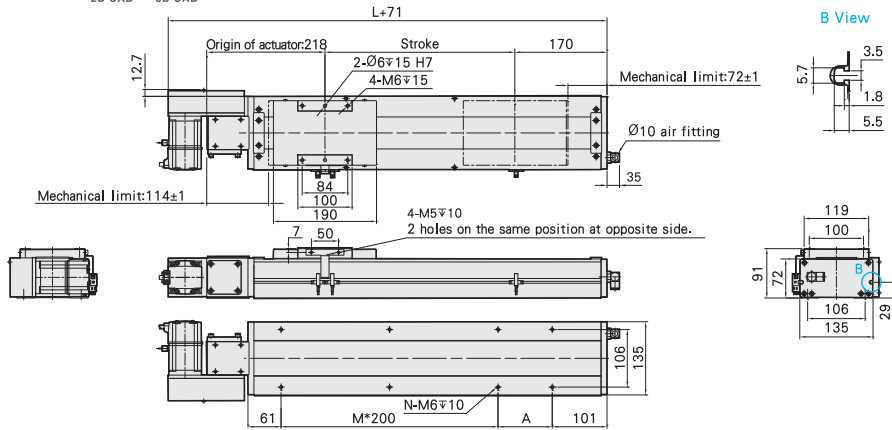
L

Motor Left Side



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Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	10	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9

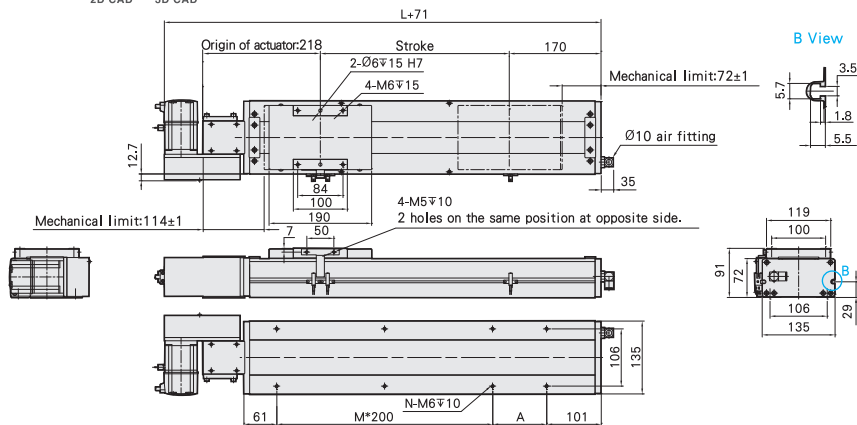
R

Motor Right Side



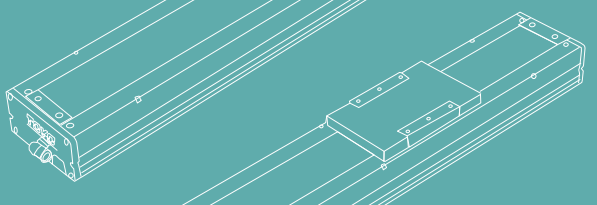
Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	10	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9



**Motor Left Upper Side /  
Motor Right Upper Side**

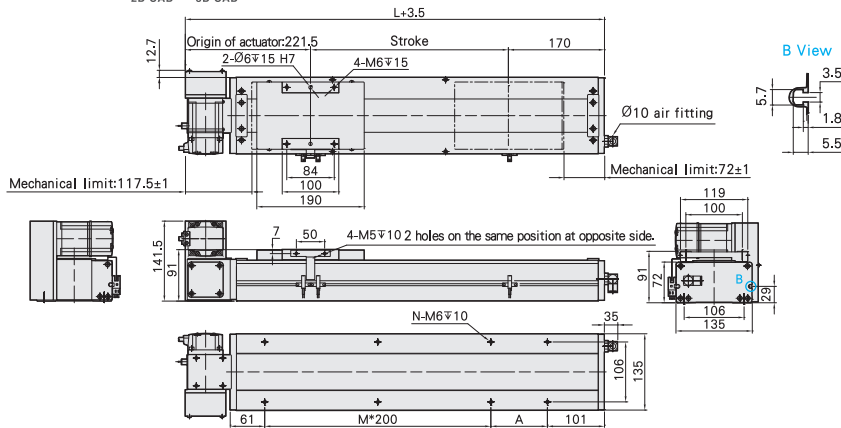
**LU**

**Motor Left Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9

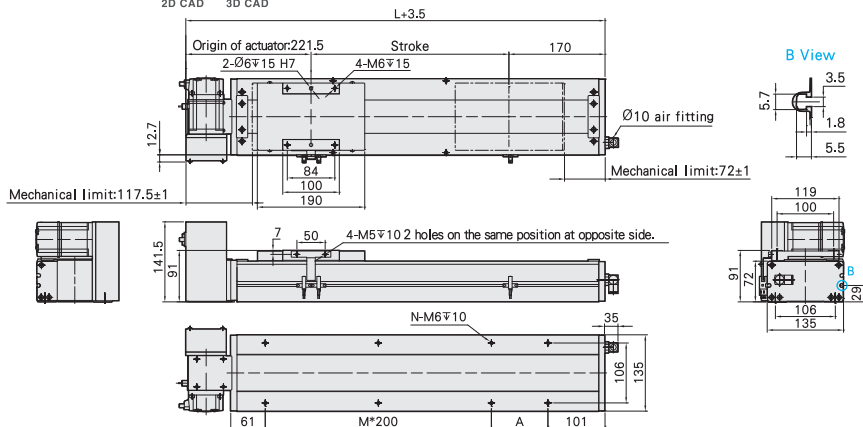
**RU**

**Motor Right Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9

# ECB10

1-axis

Clean Room Belt Drive

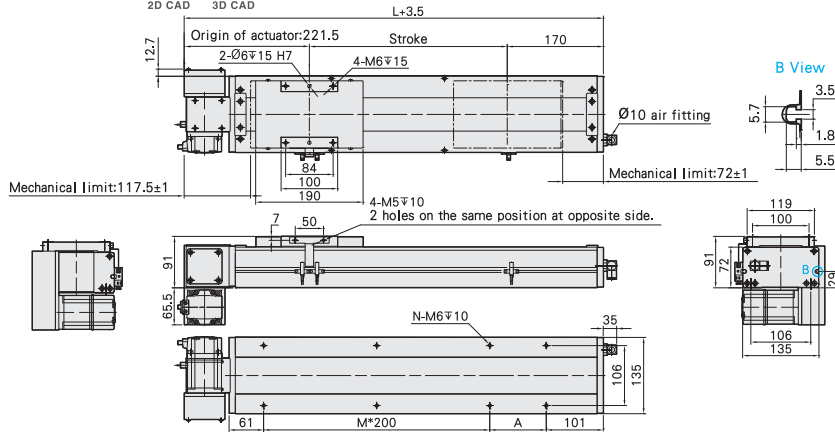
Motor Left Lower Side /  
Motor Right Lower Side

## LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

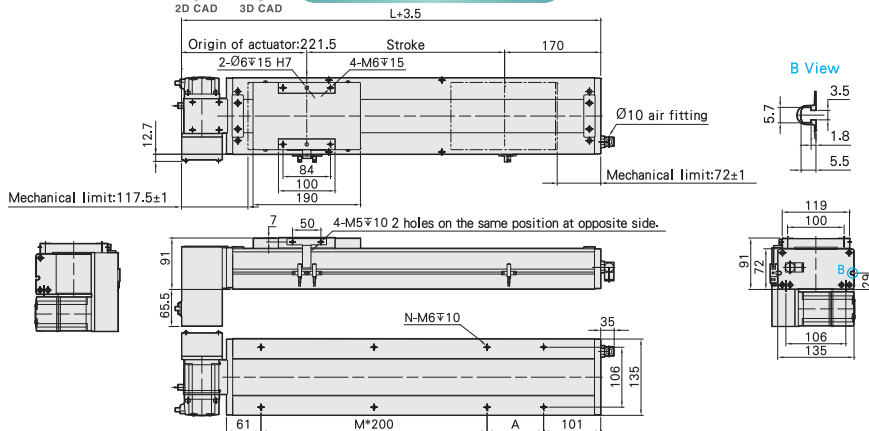
Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9

## RD Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm

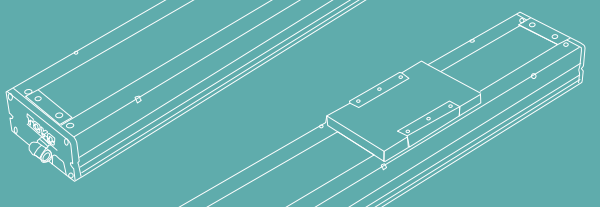


Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588	1638	1688	1738	1788	1838	1888	1938
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
KG	11.2	11.6	12	12.5	13	13.5	14	14.4	15	15.4	16	16.4	16.9	17.4	17.9	18.4	18.9	19.4	19.9	20.3	20.9	21.5	22.1	22.7	23.3	23.9	24.5	25.1	25.7	26.3	26.9

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	1988	2038	2088	2138	2188	2238	2288	2338	2388	2438	2488	2538	2588	2638	2688	2738	2788	2838	2888	2938	2988	3038	3088	3138	3188	3238	3288	3338	3388	3438
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	30	32	32	32	32	34	34	34
KG	27.5	28.1	28.7	29.3	29.9	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.7	35.3	35.9	36.5	37.1	37.7	38.3	38.9	39.5	40.1	40.7	41.3	41.9	42.5	43.1	43.7	44.3	44.9





Toll-Free Number **China 400-875-0009 Taiwan 0800-800-893**

Structure
Built-in Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

## MEMO

1 axis <b>ECB</b>
ECB10
ECB14
ECB17
ECB22

# ECB10 1-axis

▶ Clean Room ▶ Belt Drive



The picture is just for the reference. Please check the the actual dimensions on the drawing.

Maximum Stroke **4050mm**
Maximum Speed **2000mm/s**
Motor Output **400W**
Belt Width **30 mm**
Linear Guide **20X15-2pc**

## Ordering Method

**ECB17 - L 40 - 50 - L - M 40 - C 4 - 0001**

<b>Model</b>	<b>Stroke</b>	<b>Motor Position</b>	<b>Motor Brand</b>	<b>Home Sensor</b>	<b>Limit Sensor</b>																																																
	50-4050mm 50 mm Pitch <small>*For 50mm stroke see sensor limits below. *17mm±2 of overtravel included.</small>	<table border="1" style="font-size: small;"> <tr><td>L</td><td>Motor Left Side</td></tr> <tr><td>LU</td><td>Motor Left Upper Side</td></tr> <tr><td>LD</td><td>Motor Left Lower Side</td></tr> <tr><td>R</td><td>Motor Right Side</td></tr> <tr><td>RU</td><td>Motor Right Upper Side</td></tr> <tr><td>RD</td><td>Motor Right Lower Side</td></tr> </table>	L	Motor Left Side	LU	Motor Left Upper Side	LD	Motor Left Lower Side	R	Motor Right Side	RU	Motor Right Upper Side	RD	Motor Right Lower Side	<table border="1" style="font-size: small;"> <tr><td>M</td><td>Mitsubishi</td><td>10</td><td>-</td></tr> <tr><td>P</td><td>Panasonic</td><td>20</td><td>-</td></tr> <tr><td>Y</td><td>Yaskawa</td><td>40</td><td>400W</td></tr> <tr><td>T</td><td>Delta</td><td>75</td><td>-</td></tr> </table>	M	Mitsubishi	10	-	P	Panasonic	20	-	Y	Yaskawa	40	400W	T	Delta	75	-	<table border="1" style="font-size: small;"> <tr><th colspan="2">Out Side</th></tr> <tr><td>C</td><td>Motor Side</td></tr> <tr><td>D</td><td>Opposite Motor Side</td></tr> <tr><td colspan="2">No Sensor</td></tr> <tr><td colspan="2">No Sensor</td></tr> </table>	Out Side		C	Motor Side	D	Opposite Motor Side	No Sensor		No Sensor		<table border="1" style="font-size: small;"> <tr><th colspan="2">Out Side</th></tr> <tr><td>3</td><td>1Pc</td></tr> <tr><td>4</td><td>2Pc</td></tr> <tr><td colspan="2">No Sensor</td></tr> <tr><td>5</td><td>No Sensor</td></tr> </table>	Out Side		3	1Pc	4	2Pc	No Sensor		5	No Sensor
L	Motor Left Side																																																				
LU	Motor Left Upper Side																																																				
LD	Motor Left Lower Side																																																				
R	Motor Right Side																																																				
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M	Mitsubishi	10	-																																																		
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T	Delta	75	-																																																		
Out Side																																																					
C	Motor Side																																																				
D	Opposite Motor Side																																																				
No Sensor																																																					
No Sensor																																																					
Out Side																																																					
3	1Pc																																																				
4	2Pc																																																				
No Sensor																																																					
5	No Sensor																																																				
<b>Belt Type</b>	<b>Lead</b>																																																				
L Clean belt	40 40mm																																																				
<b>Special Order No.</b>																																																					

Toll-Free Number **China 400-875-0009 Taiwan 0800-800-893**

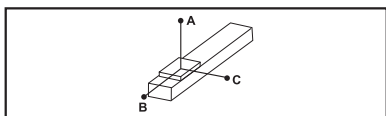
**Specifications**

Actuator Specs	Belt Lead (mm)		40
	Maximum Speed (mm/s)		2000
	Max payload	Horizontal (kg)	45
		Vertical (kg)	-
	Rated Thrust (N)		204
	Load Capacities	Dynamic Horizontal (kg)	3792
		50 km of travel 2540 km of travel	261
		Static Horizontal (kg)	13228
	Repeatability (mm)		±0.04
	Allowable Input Torque (rpm)		3000
	Lost Motion (mm)		0.15
	Allowable Input Torque (N.m)		4.5
	Maximum Acceleration (in/sec)		5
	Friction Coefficient		<0.01
Stroke Pitch (mm)		50-4050mm / 50mm Pitch	

Parts Specs	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	220
		Maximum value of allowed tension Timax (N)	391
	Linear Guide	Basic dynamic load rating C (KG)	7584
		Basic static load rating Co (KG)	13228
	Fixed Bearing	Basic dynamic load rating Cor (N)	10000
		Basic static load rating Cr (N)	18800
	AC Servo Motor Output (W)		400
	Belt Width (mm)		30
	High Rigidity Linear Guide (mm)		W20XH15
	Home Sensor	Outside	EE-SX672(NPN)

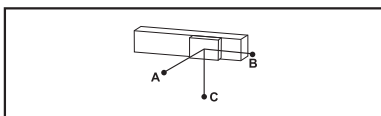
\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**



(Unit : mm)

Horizontal Installation	A	B	C
10kg	2942	1133	1033
20kg	1430	547	498
30kg	926	350	320
45kg	588	219	201



(Unit : mm)

Wall Installation	A	B	C
15kg	676	742	1933
25kg	390	428	1127
35kg	269	294	781
45kg	201	219	588

\*The torque value in the chart indicate the center of gravity.

\*Operation life is 10,000km when the product is using under the specified conditions.

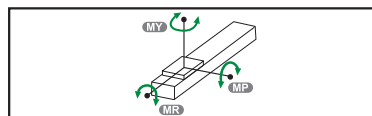
\*The steel stripe cover may deformed when the actuator length is over 1000mm. Horizontal application is recommend.

\*Data information is not for ceiling-mount inverse use. Contact us for the details if you want to apply ceiling-mount inverse usage.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	400	220	HG-KR43	MR-J4-40A
Panasonic	P	No Brake (Horizontal Type)	400	220	MHMD042P1S	MHMD042P1S
Delta	T	No Brake (Horizontal Type)	400	220	ECMA-C20604ES	ASD-B20421-B

**Static Loading moment**



(Unit : N.m)

<b>MY</b>	1032
<b>MP</b>	1034
<b>MR</b>	908

**Dynamic Loading moment**

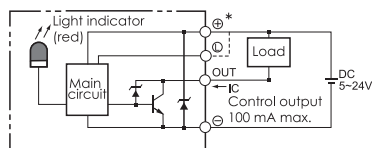
**50 km of travel** (Unit : N.m)

<b>MY</b>	339
<b>MP</b>	339
<b>MR</b>	416

**2540 km of travel** (Unit : N.m)

<b>MY</b>	89
<b>MP</b>	89
<b>MR</b>	110

**Sensor Layout**



# ECB10

1-axis

Clean Room Belt Drive

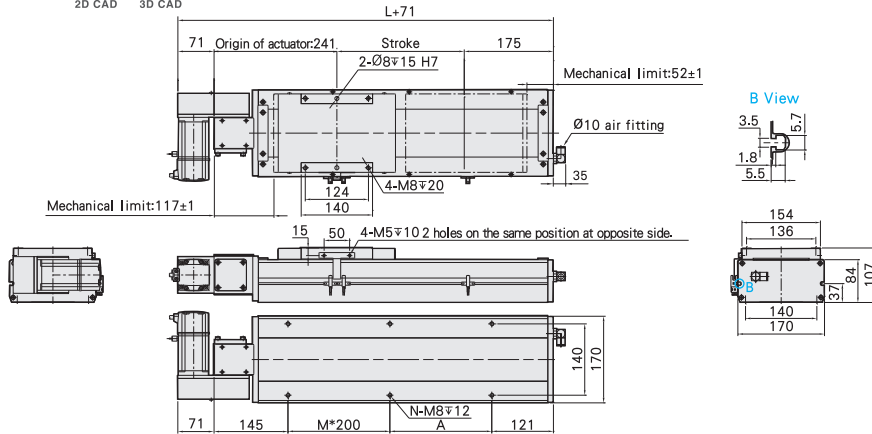
Motor Left Side /  
Motor Right Side

**L** Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

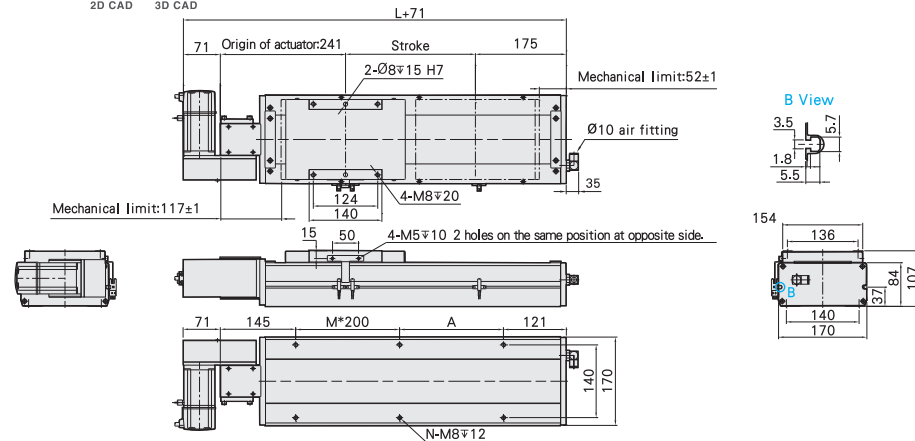
Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8

**R** Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

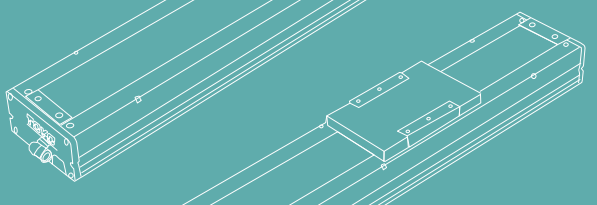
Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8



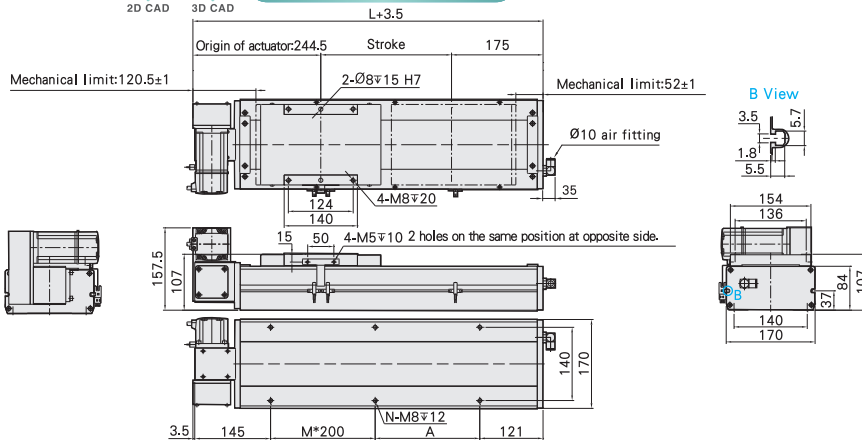
Motor Left Upper Side /  
Motor Right Upper Side

**LU** Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	14	14	16	16	16	18	18	18	18	20	20
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

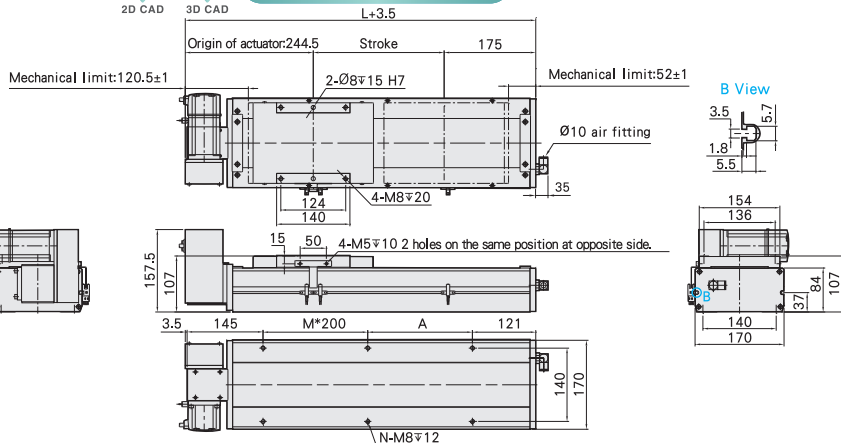
Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8

**RU** Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	7	8	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	14	14	16	16	16	18	18	18	20	20
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8

# ECB10

1-axis

Clean Room Belt Drive

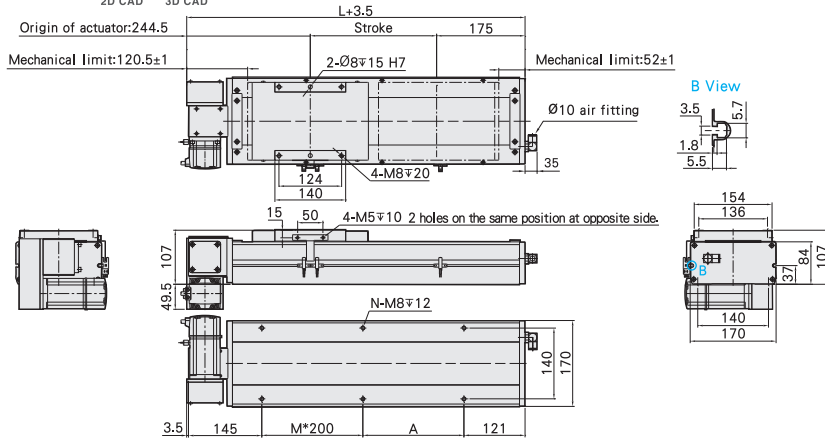
Motor Left Lower Side /  
Motor Right Lower Side

## LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

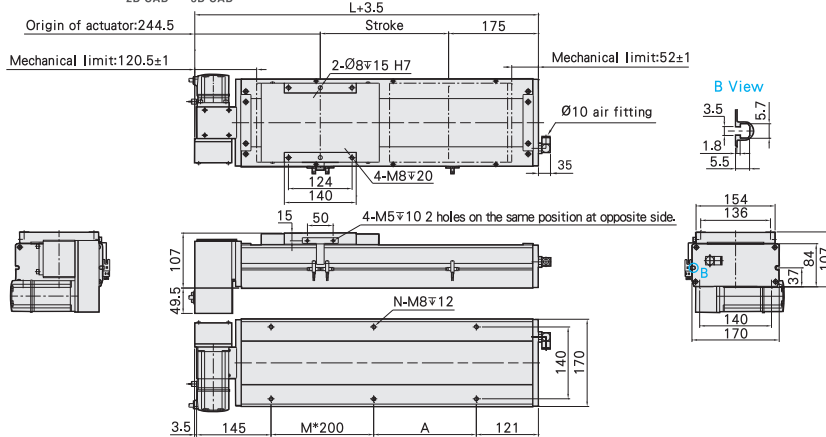
Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8

## RD Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550
L	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	
KG	13.2	15	16.8	17.6	18.4	19.1	19.9	20.7	21.5	22.2	23	23.8	24.6	25.3	26.1	26.9	27.7	28.4	29.2	30	30.8	31.6	32.4	33.2	34	34.8	35.6	36.4	37.2	38	38.8

Stroke	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050
L	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466	2516	2566	2616	2666	2716	2766	2816	2866	2916	2966	3016	3066	3116	3166	3216	3266	3316	3366	3416	3466
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
N	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34
KG	39.6	40.4	41.2	42	42.8	43.6	44.4	45.2	46	46.8	47.6	48.4	49.2	50	50.8	51.6	52.4	53.2	54	54.8	55.6	56.4	57.2	58	58.8	59.6	60.4	61.2	62	62.8

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

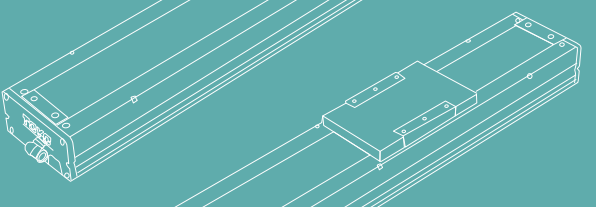
1 axis  
**ECB**

ECB10

ECB14

ECB17

ECB22



# MEMO

A large, empty rectangular area with rounded corners, intended for handwritten notes or a memo. The area is bounded by a thin black line and a teal header bar containing the word 'MEMO'.

# ECB10

1-axis

▶ Clean Room ▶ Belt Drive

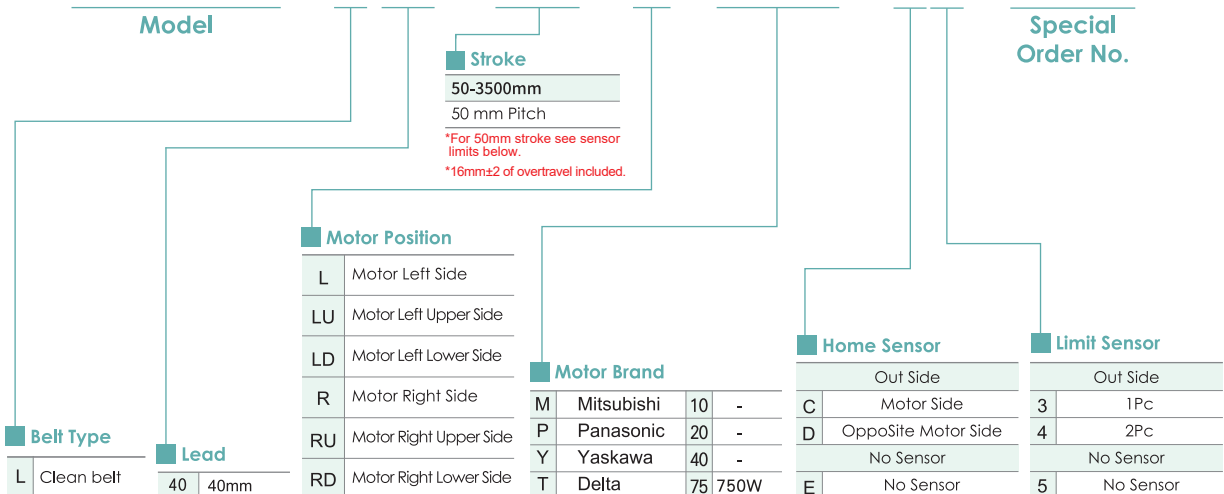


The picture is just for the reference. Please check the the actual dimensions on the drawing.

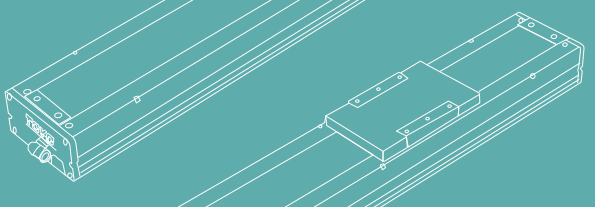
Maximum Stroke **3500mm**    Maximum Speed **2000mm/s**    Motor Output **750W**    Belt Width **50 mm**    Linear Guide **23X18-2pc**

## Ordering Method

# ECB22 - L 40 - 100 - L - M 75 - C4 - 0001







**Specifications**

<b>Actuator Specs</b>	Belt Lead (mm)		40	
	Maximum Speed (mm/s)		2000	
	Max payload	Horizontal (kg)	85	
		Vertical (kg)	-	
	Rated Thrust (N)		367	
	Load Capacities	Dynamic Horizontal (kg)	50 km of travel	5162
			2540 km of travel	1394
		Static Horizontal (kg)		18012
	Repeatability (mm)		±0.04	
	Allowable Input Torque (rpm)		3000	
	Lost Motion (mm)		0.15	
	Allowable Input Torque (N.m)		8.4	
	Maximum Acceleration (in/sec)		5	
Friction Coefficient		<0.01		
Stroke Pitch (mm)		50-3500mm / 50mm Pitch		

<b>Parts Specs</b>	Belt Lead (mm)		40
	Belt	Standard tension value Tis (N)	376
		Maximum value of allowed tension Timax (N)	651
	Linear Guide	Basic dynamic load rating C (KG)	10324
		Basic static load rating Co (KG)	18012
	Fixed Bearing	Basic dynamic load rating Cor (N)	20000
		Basic static load rating Cr (N)	37600
	AC Servo Motor Output (W)		750
	Belt Width (mm)		50
	High Rigidity Linear Guide (mm)		W23XH18
	Home Sensor	Outside	EE-SX672(NPN)

\*Acceleration and deceleration value is set at 0.4 seconds.

**Allowable Overhang**

(Unit : mm)

Horizontal Installation	A	B	C
45kg	1588	600	349
65kg	1052	328	285
85kg	768	281	206

(Unit : mm)

Wall Installation	A	B	C
40kg	500	685	1805
60kg	315	430	1152
85kg	206	281	768

\*The torque value in the chart indicate the center of gravity.  
 \*Operation life is 10,000km when the product is using under the specified conditions.  
 \*The steel stripe cover may deformed when the actuator length is over 1000mm. Horizontal application is recommend.  
 \*Data information is not for ceiling-mount inverse use.Contact us for the details if you want to apply ceiling-mount inverse usage.

**Suitable Motor Brands**

Brand	Mark	Brake	Watt	AC-Voltage	Motor Model	Driver Model
Mitsubishi	M	No Brake (Horizontal Type)	750	220	HG-KR73	MR-J4-70A
Panasonic	P	No Brake (Horizontal Type)	750	220	MHMD082P1S	MBDHT3520
Delta	T	No Brake (Horizontal Type)	750	220	ECMA-C30807ES	ASD-B0721-A

**Static Loading moment**

(Unit : N.m)

<b>MY</b>	2052
<b>MP</b>	2052
<b>MR</b>	1810

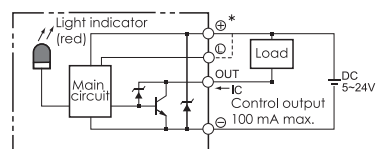
**Dynamic Loading moment**

50 km of travel (Unit : N.m)	
<b>MY</b>	879
<b>MP</b>	879
<b>MR</b>	799

2540 km of travel (Unit : N.m)	
<b>MY</b>	231
<b>MP</b>	231
<b>MR</b>	210

**Sensor Layout**



# ECB10

1-axis

▶ Clean Room ▶ Belt Drive

Motor Left Side /  
Motor Right Side

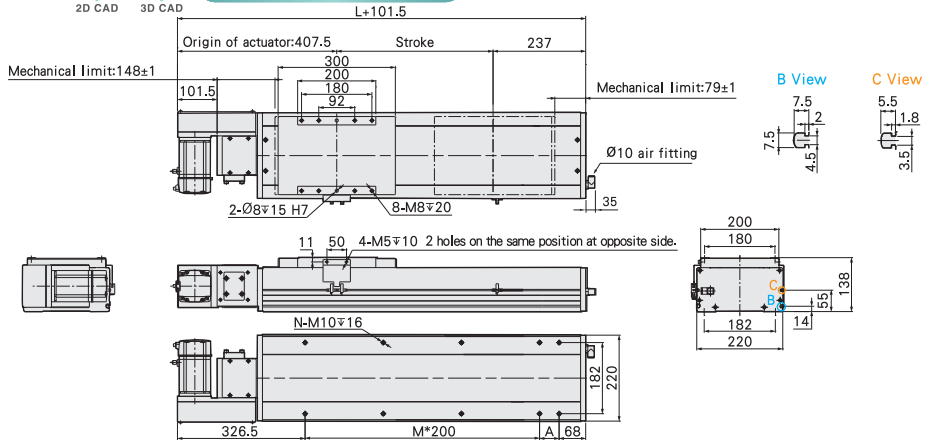
Unit: mm

L

Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4

Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	17	17	17	17	18	
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2

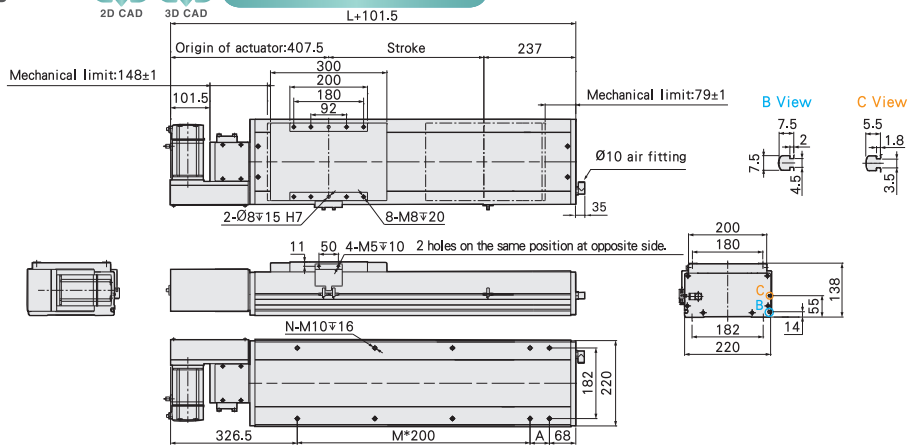
R

Motor Right Side



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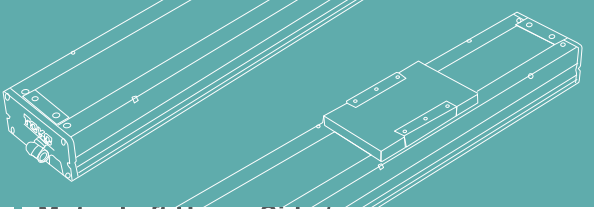
Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4

Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	17	17	17	17	18	
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2



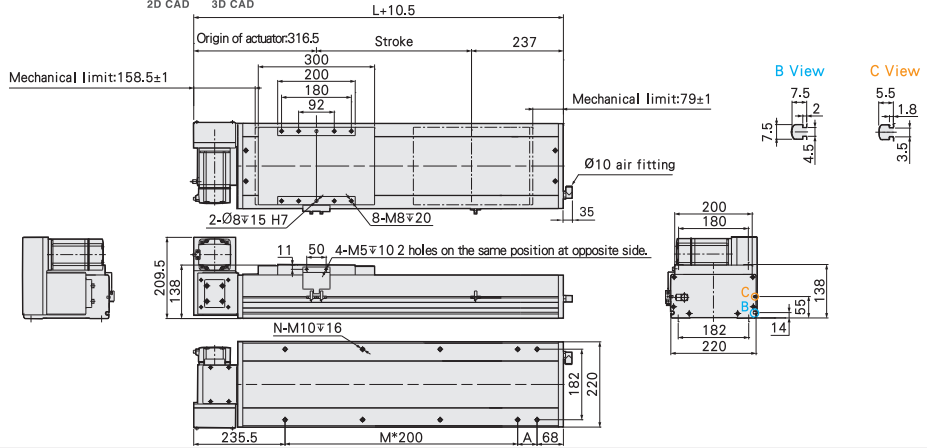
**Motor Left Upper Side /  
Motor Right Upper Side**

**LU Motor Left Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	22	22	22	
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4

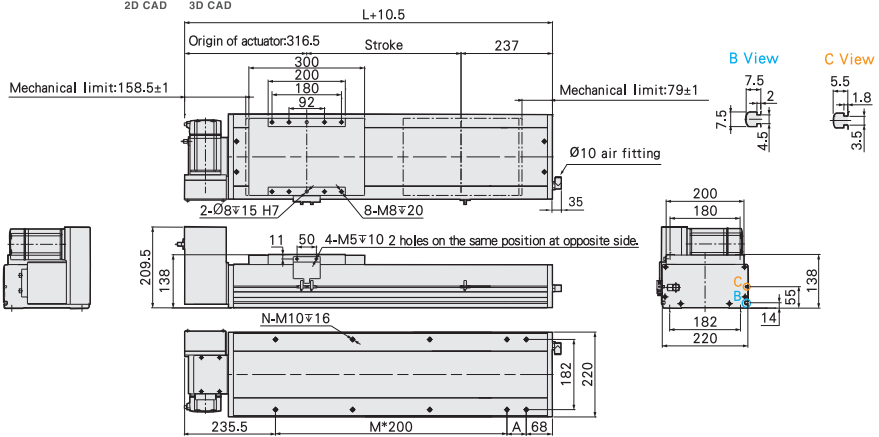
Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	16	17	17	17	17	18
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2

**RU Motor Right Upper Side**



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	22	22	22	22
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4

Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	16	17	17	17	17	18
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2

# ECB10

1-axis

▶ Clean Room ▶ Belt Drive

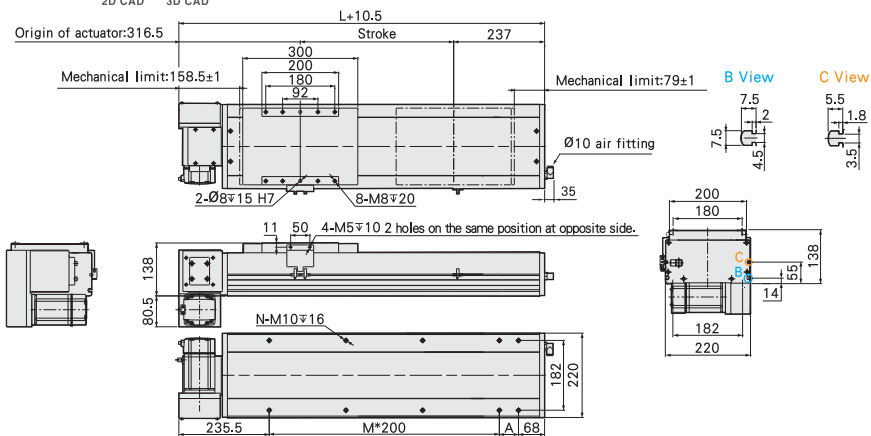
## Motor Left Lower Side / Motor Right Lower Side

### LD Motor Left Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243	
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4	

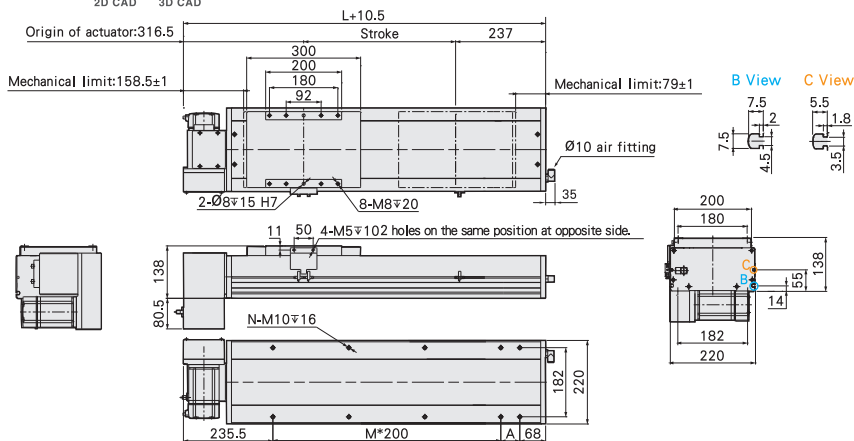
Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	17	17	17	17	18
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2

### RD Motor Right Upper Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit: mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	
L	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243	
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	
KG	31.8	33	34.2	35.4	36.6	37.8	39	40.2	41.4	42.6	43.8	45	46.2	47.4	48.6	49.8	51	52.2	53.4	54.6	55.8	57	58.2	59.4	60.6	61.8	63	64.2	65.4	66.6	67.8	69	70.2	71.4	

Stroke	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150	3200	3250	3300	3350	3400
L	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193	3243	3293	3343	3393	3443	3493	3543	3593	3643	3693	3743	3793	3843	3893	3943
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	9	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15	16	16	16	17	17	17	17	18
N	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30	30	32	32	32	32	34	34	34	34	36	36	36	36	38	38	38	38	40
KG	72.6	73.8	75	76.2	77.4	78.6	79.8	81	82.2	83.4	84.6	85.8	87	88.2	89.4	90.6	91.8	93	94.2	95.4	96.6	97.8	99	100.2	101.4	102.6	103.8	105	106.2	107.4	108.6	109.8	111	112.2

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

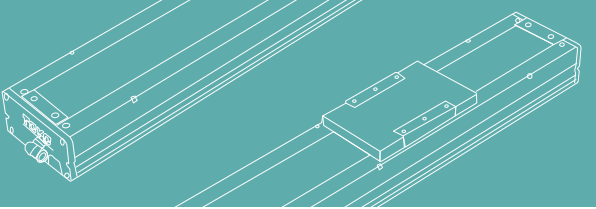
1 axis  
**ECB**

ECB10

ECB14

ECB17

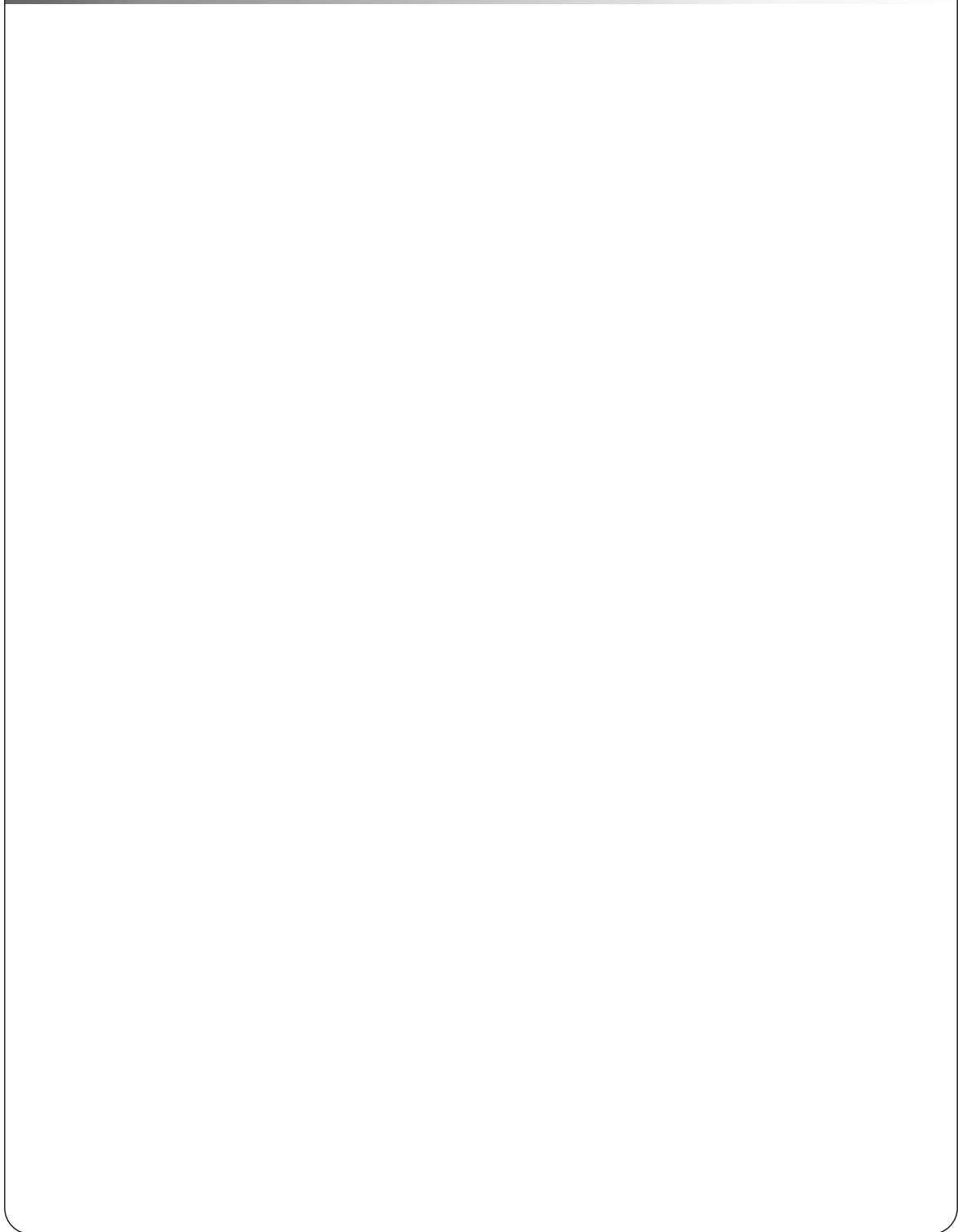
ECB22



# MEMO

Large empty rectangular area for notes or specifications.

**MEMO**



# Reference

## Product Information

### CONTENTS

#### Product information / Usage / Contact Information

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## Warranty

TOYO robots are designed and manufactured to be free from defects in materials and workmanship.

However, should any failure occur in the robot you purchased, the TOYO warranty coverage is as follows.

### Warranty Period

This warranty is effective for a period of :

- 18 months (one and a half years) after shipment from Taiwan factory, or
- One year after installation or
- 2,500 hours of actual operation whichever comes first.

### Exceptions to the Warranty

This warranty will not apply in the following cases :

- Fatigue arising due to the passage of time, natural wear and tear occurring during operation (natural fading of painted or plated surfaces, deterioration of parts subject to wear).
- Minor natural phenomena which do not affect the capabilities of the robot (noise from computers, motors, etc.).
- Damage due to earthquakes, storms, floods, thunderbolt, fire or any other natural or man-made calamities.
- Troubles caused by procedures prohibited in this manual.
- Modifications to the robot not approved by TOYO or TOYO sales representatives.
- Use of any other than genuine parts and specified lubricant and grease.
- Inefficiency or errors in maintenance and inspection.
- Repairs by other than authorized dealers.

In addition, Toyo will be responsible for the maintenance of our products. However, Toyo won't be responsible for other losses from malfunction.



Structure
Built-in Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

## Services Coverage

We provide customers with the following services :

- Guide to installation and trial operation.
- Guide to maintenance.
- Guide to wiring technical operation and training.
- Guide to technical programming.

# Cautions

## Product Safety Information

To ensure correct and safe use of TOYO industrial robots, carefully read this manual and make yourself well acquainted with the contents. FOLLOW THE WARNINGS, CAUTIONS AND INSTRUCTIONS INCLUDED IN THIS MANUAL. Warning information in this Manual is shown classified into the following items.

### 1. Safety Records

Industrial robots are highly mechanical devices that provide a large degree of freedom when performing various manipulative tasks. Failure to take necessary safety measures or mishandling due to not following the instructions in this manual may result in trouble or damage to the robot and injury to personnel (robot operator or service personnel) including fatal accidents.



#### DANGER

Failure to follow DANGER instructions will result in severe injury or death to the robot operator, bystanders or persons inspecting or repairing the robot.



#### WARNING

Failure to follow WARNING instructions could result in severe injury or death to the robot operator, bystanders or persons inspecting or repairing the robot.



#### CAUTION

Failure to follow CAUTION instructions may result in injury to the robot operator, bystanders or persons inspecting or repairing the robot, or damage to the robot and or robot controller.



#### POINTS

Key points of the sequence of operations of the Electric Slide.

#### NOTE

It is not possible to list all safety items in detail within the limited space of this manual. So it is essential that the user have a full knowledge of base safety rules and also that the operator makes correct judgments on safety procedures during operation.

This manual and warning labels supplied with or affixed to the robot are written in English. If the robot operator or service personnel does not understand English, do not permit that person to handle the robot.

## 2.Particularly Important Considerations

### Essential Caution Items

Particularly important cautions for handling or operating the robot are described below. In addition, safety information about installation, operation, inspection and maintenance is provided in each chapter. Be sure to comply with these instructions to ensure safe use of the robot.

#### (1) Observe the following cautions during automatic operation.

- Install a safeguard (protective enclosure) to keep any person from entering within the movement range of the robot and suffering injury due to being struck by moving parts.
- Install a safety interlock that triggers emergency stop when the door or panel is opened.
- Install safeguards so that no one can enter inside except from doors or panels equipped with safety interlocks.



#### **DANGER**

Serious injury or death will result from impact with moving robot.

Keep outside of guard during operation.  
Lock out power before approaching robot.

#### (2) Attention to hand sandwiched.

Use caution to prevent hands or fingers from being pinched or crushed.



#### **WARNING**

It may cause injury by crush.

- Moving parts can pinch or crush.
- Keep hands away from robot arms.

#### (3) Follow the instructions on listed on warning labels and in this manual.

- Be sure to read the warning labels and this manual carefully and make sure you thoroughly understand their contents before attempting installation and operation of the robot.
- Before starting robot operation, be sure to reread the procedures and cautions relating to your work as well as descriptions in this chapter ( "TOYO product Safety Information" ).
- Never install, adjust, inspect or service the robot in any manner that does not comply with the instructions in this manual.



#### **WARNING**

Improper installation or operation can result in serious injury or death.  
Read the owner's manual and all warning labels before operation.

## Cautions

**(4) Do not use the robot in environments containing inflammable gas, etc.**



**WARNING**

- This robot was not designed for operation in environments where inflammable or explosive substances are present.
- Do not use the robot in environments containing inflammable gas, dust or liquids. Explosions or fire might otherwise result.

**(5) Do not use the robot in locations possibly subject to electromagnetic interference, etc.**



**WARNING**

Avoid using the robot in locations subject to electromagnetic interference, electrostatic discharge or radio frequency interference. Malfunctions might otherwise occur.

**(6) Use caution when releasing the brake of a vertical use robot.**



**WARNING**

The vertical axis will slide down when the brake is released, causing a hazardous situation.

- Press the emergency stop button and prop up the vertical axis with a support stand before releasing the brake.
- Be careful not to let your body get caught between the vertical axis and installation base when releasing the brake to perform direct teach.

**(7) Use caution when removing the motor. (Vertical use robots)**



**WARNING**

The vertical axis will slide down when the motor is released, causing a hazardous situation.

- Turn off the robot controller and prop up the vertical axis with a support stand before removing the motor.
- Be careful not to let your body get caught between the vertical axis parts and installation base.

**(8) Take the following safety precautions during inspection of controller.**



**WARNING**

- When you need to touch the terminals or connectors on the outside of the controller during inspection, always first turn off the controller power switch and also the power source in order to prevent possible electrical shock.
- Never touch any internal parts of the controller.

**(9) Consult with us for corrective action when the robot is damaged or malfunctions occur.****WARNING**

- If any part of the robot is damaged or any malfunction occurs, continuing the operation may be very dangerous. Please consult with your TOYO sales office or dealer for corrective action.
- Steel strips, rollers, and lubricants are consumables. We suggest to replace once a year.

**(10) Be careful not to touch the motor or speed reduction gear casing when hot.****WARNING**

The motor and speed reduction gear casing are extremely hot after automatic operation, so burns may occur if these are touched.  
Before handling these parts during inspection or servicing, turn off the controller, wait for a while and check that the part has cooled.

**(11) Do not remove, alter or stain the warning labels.****WARNING**

- Do not remove, alter or stain the warning labels on the robot.
- Do not allow the warning labels to be hidden by devices installed onto the robot by the user.
- Provide proper lighting so that the symbols and instructions on the warning labels can be clearly seen even from outside the safeguard enclosure.

**(12) Protective bonding.****WARNING**

Be sure to ground the robot and controller to prevent electrical.

**(13) Be sure to make correct parameter settings.****WARNING**

The robot must be operated with correct tolerable moment of inertia and acceleration coefficients according to the manipulator tip mass and moment of inertia. If these are not correct, drive unit service life may end prematurely, and damage to robot parts or residual vibration during positioning may result.

# Cautions

## 3. Robot Safety Functions

### (1) Overload detection.

This function detects an overload applied to the motor and shuts off the servo power.

### (2) Soft limits.

Soft limits can be set on each axis to limit the working envelope in manual operation after return-to-origin and during automatic operation.

*Note: The working envelope is the area limited by soft limits.*

### (3) Mechanical stoppers.

If the servo power is suddenly shut off during high-speed operation by emergency stop or safety functions, these mechanical stoppers prevent the axis from exceeding the movement range. No mechanical stopper is provided on the rotating axis.

*Note: The movement range is the area limited by mechanical stoppers.*



### WARNING

Axis movement will not stop immediately after the servo power supply is shut off by emergency stop or other safety functions.

### (4) Vertical axis brake.

An electromagnetic brake is installed on the vertical use robot to prevent the vertical axis from sliding down when servo power is turned off. This brake is working when the controller is off or the vertical axis servo power is off even when the controller is on. The vertical axis brake can be released by means of the programming unit or by a command in the program when the controller is on.



### WARNING

The vertical axis will slide down when the brake is released, creating a hazardous situation.

- Press the emergency stop button and prop the vertical axis with a support stand before releasing the brake.
- Use caution not to let your body get caught between the vertical axis and installation base when releasing the brake to perform direct teach.

## 4. Safety Measures for the System

Since the robot is commonly used in conjunction with an automated system, dangerous situations are more likely to occur from the automated system than from the robot itself. Accordingly, appropriate safety measures must be taken on the part of the system manufacturer according to the individual system. The system manufacturer should provide a proper instruction manual for safe, correct operation and servicing of the system.

## 5. Trial Operation

After making installations, adjustments, inspections, or maintenance or repairs to the robot, make a trial run using the following procedures.

### (1) If a safeguard enclosure has not yet been provided right after installation of the robot.

If a safeguard enclosure has not yet been provided right after installation of the robot, rope off or chain off around the movement area of the manipulator in place of the safeguard, and observe the following points.

1. Use sturdy, stable posts which will not fall over easily.
2. The rope or chain should be easily visible by everyone around the robot.
3. Place a sign to keep the operator or other personnel from entering the movement range of the manipulator.

### (2) Check the following points before turning on the controller.

1. Is the robot securely and correctly installed?
2. Are the electrical connections to the robot correct?
3. Are items such as air pressure correctly supplied?
4. Is the robot correctly connected to peripheral equipment?
5. Have safety measures (safeguard enclosure, etc.) been taken?
6. Does the installation environment meet the specified standards.

## Cautions

### (3) After the controller is turned on, check the following points from outside the safeguard enclosure.

After the controller is turned on, check the following points from outside the safeguard enclosure.

1. Does the robot start and stop as intended? Can the operation mode be selected correctly?
2. Does each axis move as intended within the soft limits?
3. Does the end effector move as intended?
4. Are the signal transmissions to the end effector and peripheral equipment correct?
5. Does emergency stop work?
6. Are the teaching and playback functions normal?
7. Are the safeguard enclosure and interlock working as intended?
8. Does the robot move correctly during automatic operation?

## 6. Work Within the Safeguard Enclosure

### (1) Work within the safeguard enclosure.

#### ① Work within the safeguard enclosure

When work is required inside the safeguard enclosure, always turn off the controller and place a sign indicating that the robot is being adjusted or serviced in order to keep any other person from touching the controller switch or operation panel, except for the following cases.

- 1) Soft limit settings
- 2) Teaching

For item 1), follow the precautions and procedure for each section. To perform item 2), refer to the description in (2) below.

### (2) Teaching

#### ② Teaching

When performing teaching within the safeguard enclosure, comply with the instructions listed below.

- 1) Check or perform the following points from outside the safeguard enclosure.
  1. Make sure that no hazards are present within the safeguard enclosure by a visual check.
  2. Check that the programming unit MPB or DPB operates correctly.
  3. Check that no failures are found in the robot.
  4. Check that emergency stop works correctly.
  5. Select teaching mode and prohibit automatic operation.
- 2) Never enter the movement range of the manipulator while within the safeguard enclosure.



## 7. Automatic Operation

**(1) Automatic operation described here includes all operations in AUTO mode.**

Automatic operation described here includes all operations in AUTO mode.

① Check the following before starting automatic operation.

- 1.No one is within the safeguard enclosure.
- 2.The programming unit and tools are in their specified locations.
- 3.The alarm or error lamps on the robot and peripheral equipment do not flash.
- 4.The safeguard enclosure is securely installed with safety interlocks actuated.

**(2) Observe the following during automatic operation or in cases where an error occurs.**

- 1) After automatic operation has started, check the operation status and warning lamp to ensure that the robot is in automatic operation.
- 2) Never enter the safeguard enclosure during automatic operation.
- 3) If an error occurs in the robot or peripheral equipment, observe the following procedure before entering the safeguard enclosure.
  - 1.Press the emergency stop button to set the robot to emergency stop.
  - 2.Place a sign on the start switch, indicating that the robot is being inspected in order to keep any other person from touching the start switch and restarting the robot.

## 8. Adjustment and Inspection

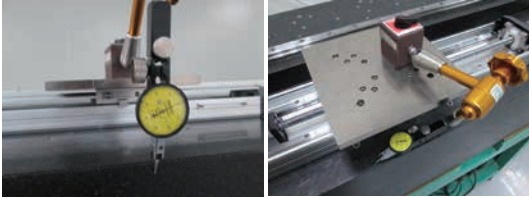
Do not attempt any installation, adjustment, inspection or maintenance unless it is described in this manual.

## 9. Repair and Modification

Do not attempt any repair, parts replacement and modification unless described in this manual. These works require technical knowledge and skill, and may also involve work hazards

# Measuring Tools

## 1.Parallelism Testing / Height Testing.



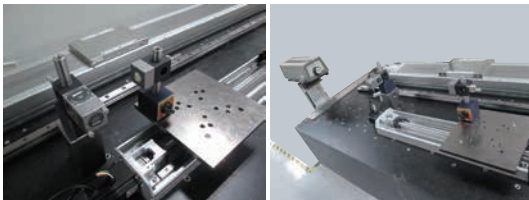
### Measuring Tools

Dial Gauge, Dial Indicator

### Measuring Methods

- 1.Fix the actuator on granite.
- 2.Fix the measuring tools on the actuator's slider.
- 3.As photo display.
- 4.Record it as a reference.

## 2.Absolute Straightness Accuracy Testing



### Measuring Tools

Laser Interferometer Detection

### Measuring Methods

- 1.Fix the actuator on granite.
- 2.Fix the measuring tools on the actuator's slider.
- 3.As photo display.
- 4.Print the test report as a recoder.

## 3.Absolute Straightness Accuracy Testing



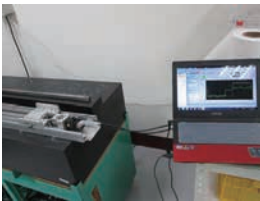
### Measuring Tools

Laser Position Detection

### Measuring Methods

- 1.Fix the actuator on granite.
- 2.Use laser to align the slider's side to the detect the repeatability accuracy.
- 3.As photo display.
- 4.Record it as a reference.

## 4.Power Drive Situation Testing by Motor Electric Current



### Measuring Tools

Mitsubishi Servo Driver 100W、200W、400W、750W

### Measuring Methods

- 1.Fix the actuator on granite.
- 2.Fix the measuring tools on the actuator's slider.
- 3.As photo display.
- 4.Record it as a reference.

## 5.Smoothness Testing



### Measuring Tools

Pull Tension Gauge

### Measuring Methods

- 1.Fix the actuator on granite.
- 2.Push the slider using pull tension gauge.
- 3.As photo display.
- 4.Record it as a reference.

## 6. Belt Tension Testing



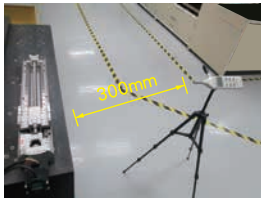
### Measuring Tools

Pull Tension Gauge

### Measuring Methods

1. Fix the actuator on granite.
2. Use belt tension gauge to test the vibration of the belt.
3. As photo display.
4. Record it on shipping testing.

## 7. Decibel Testing



### Measuring Tools

Decibel Meter

### Measuring Methods

1. Fix the actuator on granite.
2. Decibel meter put at the distance of 300mm
3. As photo display.
4. Record it on shipping testing.

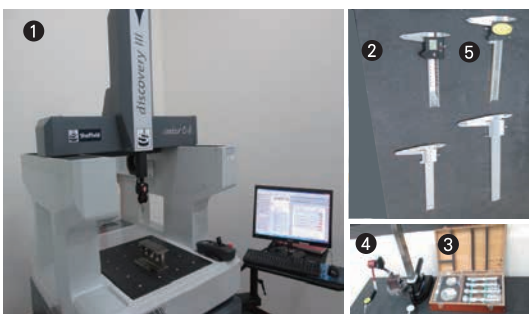
## 8. Measuring Tool: Granite Platform



### Granite Specifications

1. Size: 1295mm\*600mm\*140mm
2. Size: 4020mm\*800mm\*300mm

## 9. Material Tools



### Measuring Tools

1. 3D Inspection Testing Machine
2. Electronic vernier caliper, Vernier caliper
3. Inside micrometer, Outside micrometer
4. Altimeter, Vertical meter
5. Electronic level meter
6. Dial Gauge, Dial Indicator
7. Steel tape, Steel ruler

### Measuring tools calibration standards

Block gauge, ring gauge (regularly qualified)

### QC Room

Control temperature and humidity to keep the stability of the measurement.

Measuring tools calibrate regularly.

# Technical Wording Reference

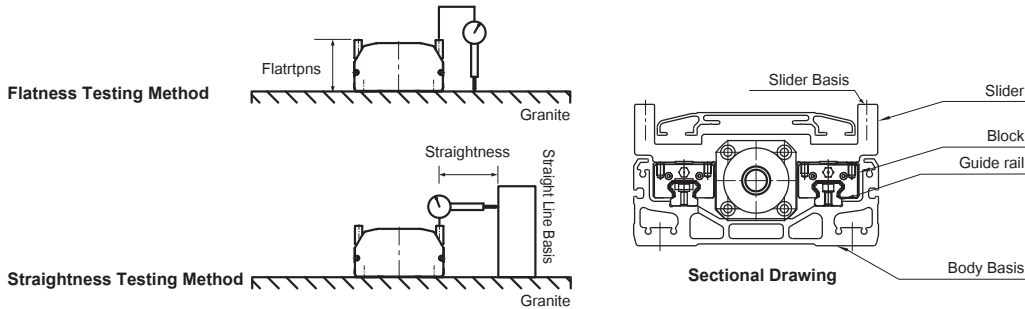
## Flatness and Straightness Standard

**Straightness:** Fixed the actuator on the measuring plate and measure the parallelism of the datum plane of the carriage and straightness gauge, which should be less than 0.1mm/M.

**Flatness:** Fixed the actuator on the measuring plate and measure the parallelism of the datum plane of the carriage and mounting surface of the actuator, which should be less than 0.1mm/M.

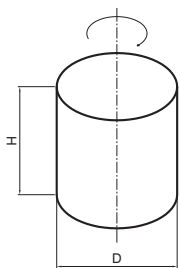
※ The values above are for the test environment temperature set at 26° ± 2°.

※ The values above are for measuring 1 m of any location and the standard of flatness must be 0.01mm or less.



## Equation of Moment of Inertia Calculation

Usually the load is not a simple form, and the calculation of the moment of inertia is noteasy. As a method,the load is replaced with several factors that resemble a simple form for which themoment of inertia can be calculated. The total of the moment of inertia for these factors is thenobtained. The objects and equations often used for the calculation of the moment of inertia are shownbelow.



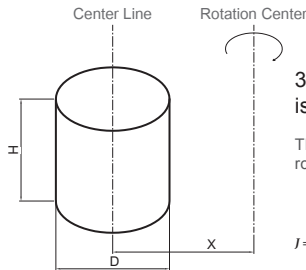
### 1. Moment or inertia for cylinder :

The moment of inertia (J) for a cylinder having a rotation center such as shown below is given by

$$J = \frac{P\pi D^4 h}{32 \times 980} = \frac{WD^2}{8g} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{mD^2}{8} \text{ (Kgm}^2\text{)}$$

- P = Density (kg / cm<sup>3</sup>)
- g = Gravitational acceleration (cm / sec<sup>2</sup>)
- W = Weight of cylinder (kgf)
- m = Mass of cylinder (kg)



### 3. When the object's center line is offset from the rotation center :

The moment of inertia (J) for a cylinder having a rotation center such as shown below is given by

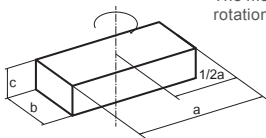
$$J = \frac{P\pi D^4 h}{32} + \frac{P\pi D^2 h}{4} = \frac{WD^2}{8g} + \frac{WX^2}{G} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{mD^2}{8} + mX^2 \text{ (Kgm}^2\text{)}$$

- P = Density (kg / cm<sup>3</sup>)
- g = Gravitational acceleration (cm / sec<sup>2</sup>)
- W = Weight of cylinder (kgf)
- m = Mass of cylinder (kg)

### 2. Moment of inertia for rectangular parallelepiped :

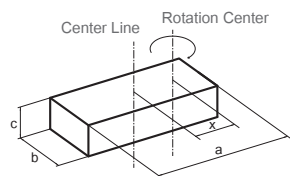
The moment of inertia (J) for a cylinder having a rotation center such as shown below is given by



$$J = \frac{Pabc(a^2+b^2)}{12} = \frac{W(a^2+b^2)}{12g} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{M(a^2+b^2)}{12} \text{ (Kgm}^2\text{)}$$

- P = Density (kg / cm<sup>3</sup>)
- g = Gravitational acceleration (cm / sec<sup>2</sup>)
- W = Weight of cylinder (kgf)
- m = Mass of cylinder (kg)



$$J = \frac{Pabc(a^2+b^2)}{12} + \frac{PabcX^2}{G}$$

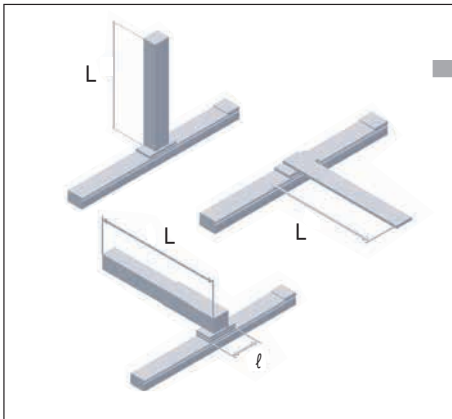
$$= \frac{W(a^2+b^2)}{12g} + \frac{WX^2}{G} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{M(a^2+b^2)}{12} + mX^2 \text{ (Kgm}^2\text{)}$$

- W = Weight of prism (kgf)
- m = Mass of prism (kg)

## Overhang Load Length

An overhang load length is specified for a slider-type actuator to indicate the length of overhang (offset) from the actuator. When the length of an object mounted to the slider actuator exceeds this length, it will generate vibration and increase the settling time. So, pay attention to the allowable overhang length as well as the allowable dynamic moment.



The allowable overhang load length is determined by the slider length.

An overhang that exceeds the allowable overhang length will generate vibration and increase settling time.

$L/l = 5$   
Between 3 to 4  
for a camera equipped

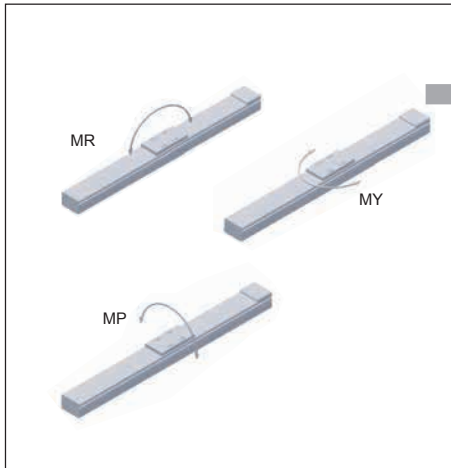
- For example:
  - $L/l = 1.2$  Mechanical Machine
  - $L/l = 3$  Measuring Machine
  - $L/l = 5$  Robot

## Allowable Dynamic Moment

The allowable dynamic moment is the maximum offset load exerted on the slider, calculated from the guide service life.

The direction in which force is exerted on the guide is categorized into 3 directions - MP (pitch), MY (yaw), MR (roll) - the tolerance for each of which are set for each actuator.

Applying a moment exceeding the allowable value will reduce the service life of the actuator. Use an auxiliary guide when working within or in excess of these tolerances.



The allowable dynamic moment is calculated from the service life of the guide.

Over the moment would reduce the life of actuator.

Moment is based on the following basis.

$$M(N.m) = W(kg) \times L(m) \times 9.8$$

W(kg) = Load  
L(m) = Distance from work point to the center of gravity of payload

# Ball Screw Intormation

## Lead Accuracy

PMI's precision ground baliscrews are controlled in accordance with JIS B 1192. The permissible values and definitions of each part are shown below.

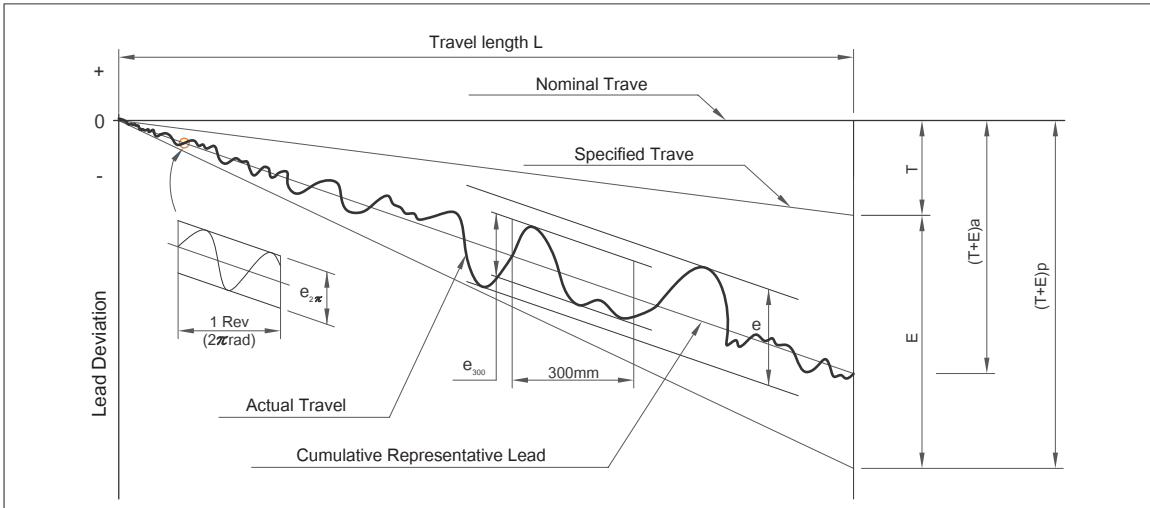


Fig.1 Technical Terms Concerning the Lead

**Table 1** Terms

<b>T + E</b>	<b>Cumulative Representative Lead</b>	Cumulative representative lead. A straight line representing the tendency of the cumulative actual lead. This is obtained by least square method and measured by laser system.
<b>P</b>		Permissible value.
<b>a</b>		Actual value.
<b>T</b>	<b>Specified Travel Specify The Target Value</b>	Specified travel. This value is determined by customer and maker as it depends on different application requirements
<b>E</b>	<b>Cumulative Representative Lead Error</b>	Accumulated reference lead deviation. This is allowable deviation of specified travel. It is decided by both of the accuracy grade and effective thread length.
<b>e</b>	<b>Change</b>	Total relative lead variation Maximum width of variation over the travel length.
<b>e<sub>300</sub></b>		Lead deviation in random 300 mm.
<b>e<sub>2π</sub></b>		Lead deviation in random 1 revolution 2π rad.

**Table 2** Accumulated reference lead deviation ( $\pm E$ ) and total relative variation ( $e$ )

Effective thread length (mm)	GRAND		C0		C1		C2		C3		C4		C5		C6	C7	C8
	OVER	UP TO	E	e	E	e	E	e	E	e	E	e	E	e			
		315	4	3.5	6	5	5	7	12	8	12	12	23	18	±0.025 / 300mm	±0.050 / 300mm	±0.120 / 300mm
	315	400	5	3.5	7	5	7	7	13	10	14	12	25	20			
	400	500	6	4	8	5	8	7	15	10	16	12	27	20			
	500	630	6	4	9	6	9	7	16	12	18	14	30	23			
	630	800	7	5	10	7	10	7	18	13	20	14	35	25			
	800	1000	8	6	11	8	11	8	21	15	22	16	40	27			
	1000	1250	9	6	13	9	13	9	24	16	25	18	46	30			
	1250	1600	11	7	15	10	15	10	29	18	29	20	54	35			
	1600	2000			18	11	18	11	35	21	35	22	65	40			
	2000	2500			22	12	21	13	41	24	41	25	77	46			
	2500	3150			26	15	25	15	50	29	50	29	93	54			
	3150	4000			32	18	30	18	62	35	62	35	115	65			
	4000	5000					36	21	76	41	76	41	140	77			
	5000	6300							85	50	85	50	170	96			
	6300	8000							106	62	106	62	213	115			
	8000										132	75	265	140			

**Table 3** Accuracy grade

Variation in random 300mm ( $e_{300}$ ) and wobble ( $e_{2\pi}$ )

$\alpha_{522}$  Unit :  $\mu m$

GRAND	C0	C1	C2	C3	C4	C5	C6	C7	C10
JIS	3.5	5		8		18		50	210
TBI	3.5	5	7	8	12	18	25	50	210

$\alpha_{4\pi}$  Unit :  $\mu m$

GRAND	C0	C1	C2	C3	C4	C5
JIS	3	4		6		8
TBI	3	4	4	6	8	8

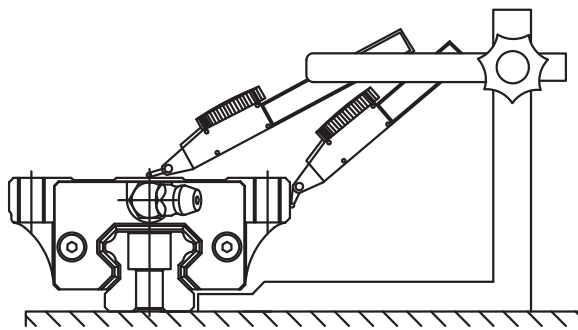
# Linear Guideway Information

## Accuracy Standard

The accuracy of linear guideway includes the dimensional tolerance of height, width, and the running accuracy of the carriage on the rail. The standard of the dimension difference is built for two or more carriages on a rail or a number of rails are used on the same plane. The accuracy of linear guideway is divided into 5 classes, normal grade (N), high precision (H), precision (P), super precision (SP), and ultra precision (UP).

## Running Parallelism

The running accuracy is the deviation of parallelism between the reference surface of carriage and reference surface of rail when carriage moving over the entire length of rail that shown as fig.1.



(fig.1) Flatness measurement

## Height Difference ( $\Delta H$ )

The height difference ( $\Delta H$ ) means the height difference among carriages installed on the same plane.

## Width Difference ( $\Delta W2$ )

The width difference ( $W2$ ) means the width difference among carriages installed on a rail.

### Note :

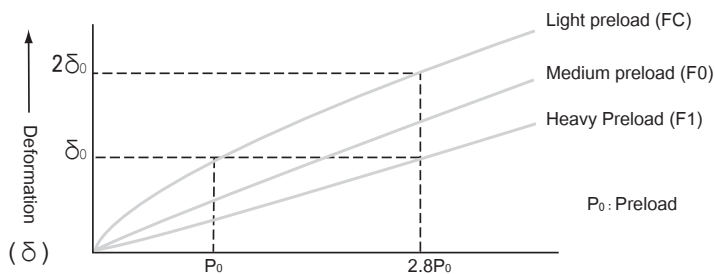
1. When it is a application of two axis or more on the same plane., the tolerance of width ( $W2$ ) to pairs tolerance ( $W2$ ) are only suitable to master side. The end of master linear guide is marked "MR" sign but the mark MR will not show on the N-class linear rail.

2.The measured precision value is based on the average value measured from the center of block.



Structure
Bullin Guideway Ball Screw Type GTH / GTY
Ball Screw Type ETH
Belt Type ETB / M
Clean Room Ball Screw Type ECH
Clean Room Belt Type ECB
Reference

## Preload and Stiffness



(fig.2) Stiffness

## The Selection of Preload

Selecting proper preload from table below to adapt the specific application and condition.

### Preload standard of linear guide.

Preload	Conditions	Application
<b>Light Preload (FC)</b>	<ul style="list-style-type: none"> <li>The loading direction is fixed, vibration and impact are light, and two axes are applied in parallel.</li> <li>High precision is not required, and the low frictional resistance is needed</li> </ul>	Welding machine, binding machine, auto packing machine, XY axis of ordinary industrial machine, material handling equipments.
<b>Medium Preload (F0)</b>	<ul style="list-style-type: none"> <li>Overhang application with a moment load.</li> <li>Applied in one-axis configuration.</li> <li>The need of light preload and high precision.</li> </ul>	Z axis of industrial machines, EDM, precision XY table, PC board drilling machine, industrial robot, NC lathe, measuring equipment, grinding machine, auto painting machine.
<b>Heavy Preload (F1)</b>	<ul style="list-style-type: none"> <li>Machine is subjected to vibration and impact, and high rigidity required.</li> <li>Application of heavy load or heavy cutting.</li> </ul>	Machine center, NC lathe, grinding machine, milling machine, Z axis of boring machine and machine tools.

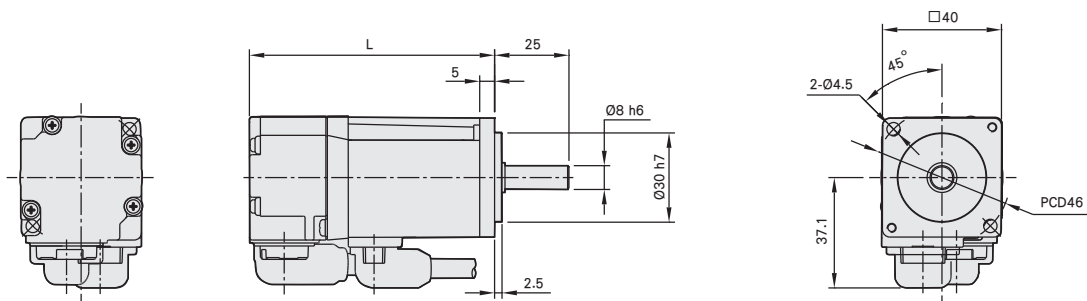
# Mitsubishi Servo Motor Information

Servo Motor	No Brake	HG-KR053	HG-KR13	HG-KR23	HG-KR43	HG-KR73
	With Brake	HG-KR053B	HG-KR13B	HG-KR23B	HG-KR43B	HG-KR73B
Motor Drives		MR-J4-10A	MR-J4-10A	MR-J4-20A	MR-J4-40A	MR-J4-70A
Power Supply Capacity (KAV)		0.3	0.3	0.5	0.9	1.3
Power Consumption (W)		50	100	200	400	750
Rated Torque (N.m)		0.16	0.32	0.64	1.3	2.4
Instantaneous Maximum Torque (N.m)		0.56	1.1	2.2	4.5	8.4
Rated Current (Arms)		0.9	0.7	1.3	2.6	4.9
Maximum Current (Arms)		3.2	2.5	4.6	9.1	17.2
Rated Speed (r/min)		3000				
Maximum Speed (r/min)		6000				
load Inertia (X10 <sup>-4</sup> kg.m <sup>2</sup> )	No Brake	0.045	0.088	0.24	0.42	1.43
	With Brake	0.0472	0.09	0.31	0.5	1.63
load Inertia Moment Ratio		Under 15 Multiple		Under 24 Multiple	Under 22 Multiple	Under 15 Multiple
Controller	Type	Incremental, Share With 22 Bit Controller				
	Encoder Resolution	4194304 p/rev				
Structure		Natural-cooling, Open (IP Rating:IP65)				
Environmental Conditions	Ambient Temperature	0°C~40°C Non-freezing, preservation -15°C~70°C Non-freezing				
	Ambient Humidity	80%RH Non-freezing, preservation 90%RH Non-condensing				
	Ambience	Indoors(no direct sunlight), Free From Corrosive Gas, Flammable Gas, Oil Mist, Dust, And Dirt.				
	Altitude	Max. 1000 m Above Sea Level				
	Vibration	49m/s <sup>2</sup>				
Weight (Kg)	No Brake	0.34	0.54	0.91	1.4	2.8
	With Brake	0.54	0.74	1.3	1.8	3.8

Model	50W	L
HG-KR053	No Brake	66.4
HG-KR053B	With Brake	107

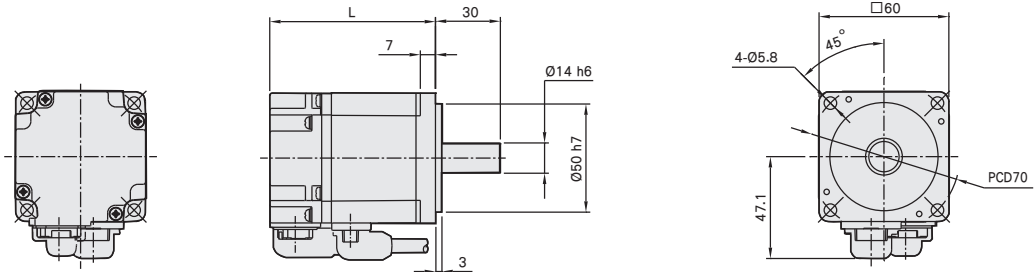
Model	100W	L
HG-KR13	No Brake	82.4
HG-KR13B	With Brake	123

50/100W



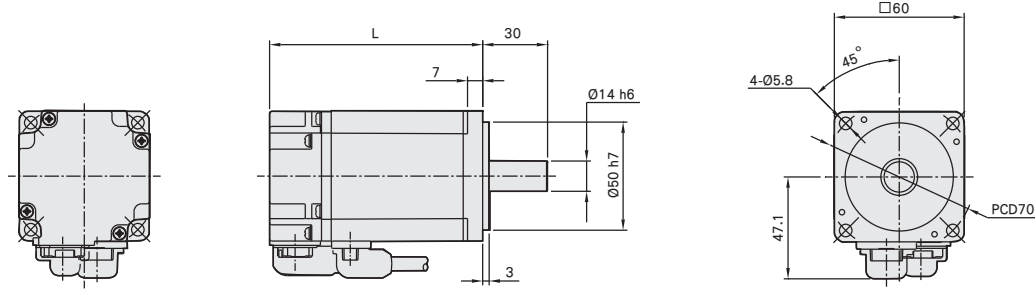
# 200W

Model	200W	L
HG-KR23	No Brake	76.6
HG-KR23B	With Brake	113.4



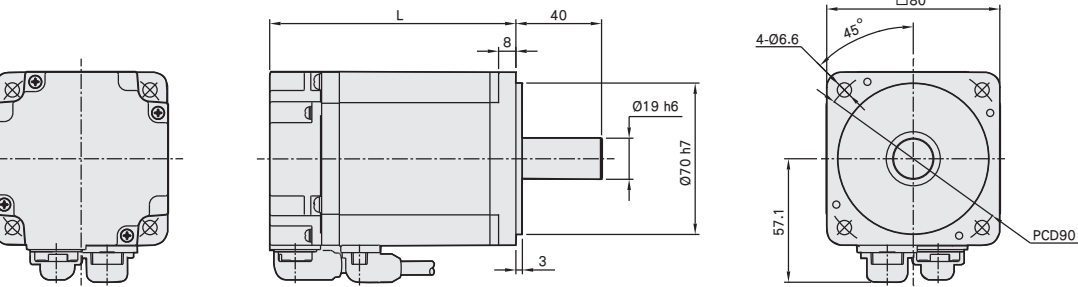
# 400W

Model	400W	L
HG-KR43	No Brake	98.3
HG-KR43B	With Brake	135.1



# 750W

Model	750W	L
HG-KR73	No Brake	112
HG-KR73B	With Brake	152.3



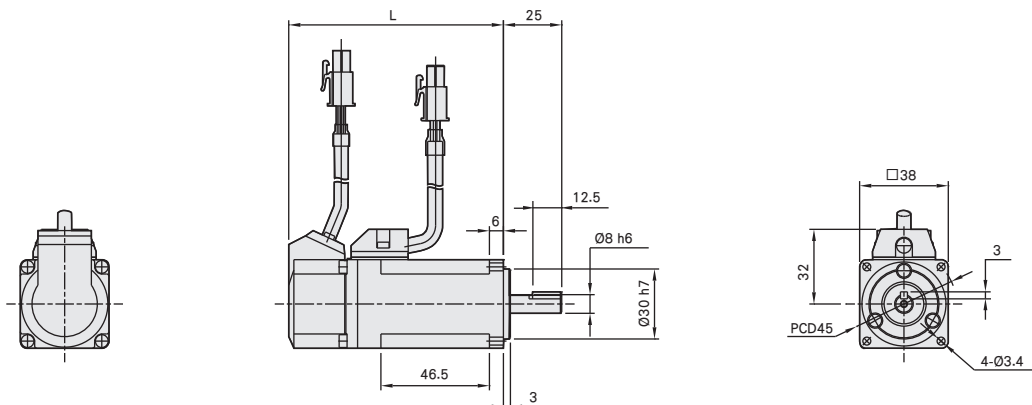
# Panasonic Servo Motor Information

Servo Motor	No Brake	MSMD5A2G1U	MSMD012G1U	MHMD022G1U	MHMD042G1U	MHMD082G1U
	With Brake	MSMD5A2G1V	MSMD012G1V	MHMD022G1V	MHMD042G1V	MHMD082G1V
Motor Drives		MADHT1505	MADHT1505	MADHT1507	MBDHT2510	MCDHT3520
Power Supply Capacity (KAV)		0.3	0.3	0.5	0.9	1.3
Power Consumption (W)		50	100	200	400	750
Rated Torque (N.m)		0.16	0.32	0.64	1.3	2.4
Instantaneous Maximum Torque (N.m)		0.48	0.95	1.9	3.8	7.1
Rated Current (Arms)		1.1	1.1	1.6	2.6	4
Maximum Current (Arms)		4.7	4.7	6.9	11	17
Rated Speed (r/min)		3000				
Maximum Speed (r/min)		5000				4500
load Inertia (X10 <sup>-4</sup> kg.m <sup>2</sup> )	No Brake	0.025	0.051	0.42	0.67	1.51
	With Brake	0.027	0.054	0.45	0.7	1.61
load Inertia Moment Ratio		Under 30 Multiple				
Controller	Pulse	Incremental				
	Resolution	10000				
Structure		Natural-cooling, Open (IP Rating:IP65)				
Environmental Conditions	Ambient Temperature	0°C~40°C Non-freezing, preservation -20°C~80°C Non-freezing				
	Ambient Humidity	85%RH Non-freezing				
	Ambience	Indoors(no direct sunlight), Free From Corrosive Gas, Flammable Gas, Oil Mist, Dust, And Dirt.				
	Altitude	Max. 1000 m Above Sea Level				
	Vibration	49m/s <sup>2</sup>				
Weight (kg)	No Brake	0.32	0.47	0.96	1.4	2.5
	With Brake	0.53	0.68	1.4	1.8	3.3

50/100W

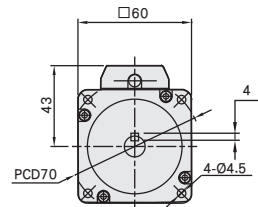
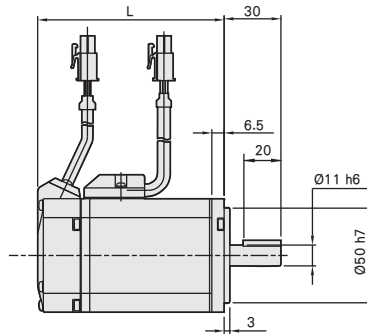
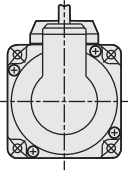
Model	50W	L
MSMD012G1U	No Brake	92
MSMD012G1V	With Brake	122

Model	100W	L
MSMD5A2G1U	No Brake	72
MSMD5A2G1V	With Brake	102



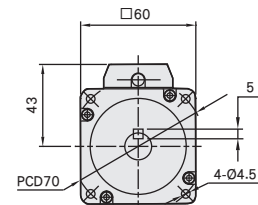
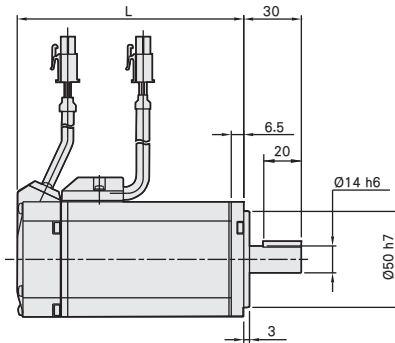
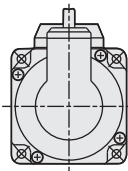
# 200W

Model	200W	L
MHMD022G1U	No Brake	98.5
MHMD022G1V	With Brake	135



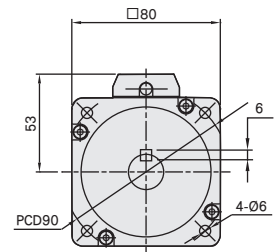
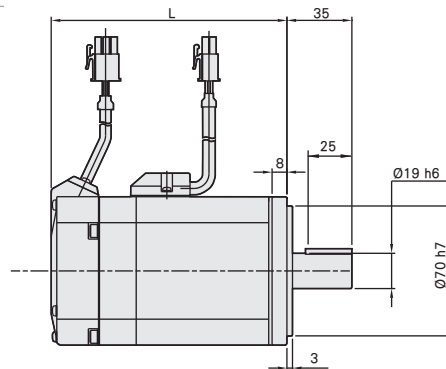
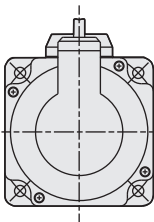
# 400W

Model	400W	L
MHMD042G1U	No Brake	118
MHMD042G1V	With Brake	154.5



# 750W

Model	750W	L
MHMD082G1U	No Brake	127
MHMD082G1V	With Brake	164



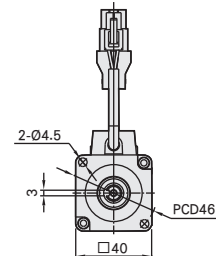
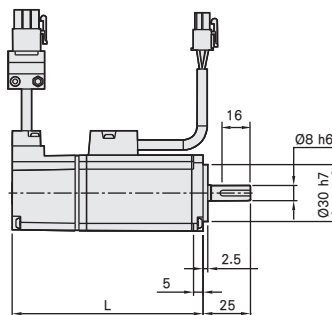
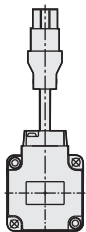
# Delta Servo Motor Information

Servo Motor	No Brake	ECMA-C1040FES	ECMA-C20401ES	ECMA-C20602ES	ECMA-C20604ES	ECMA-C20807ES
	With Brake	ECMA-C1040FFS	ECMA-C20401FS	ECMA-C20602FS	ECMA-C20604FS	ECMA-C20807FS
<b>Motor Drives</b>		ASD-B20121-B	ASD-B20121-B	ASD-B20221-B	ASD-B20421-B	ASD-B20721-B
<b>Power Consumption (W)</b>		50	100	200	400	750
<b>Rated Torque (N.m)</b>		0.159	0.32	0.64	1.27	2.39
<b>Instantaneous Maximum Torque (N.m)</b>		0.477	0.96	1.92	3.82	7.16
<b>Rated Current (Arms)</b>		0.66	0.9	1.55	2.6	5.1
<b>Maximum Current (Arms)</b>		2	2.7	4.65	7.8	15.3
<b>Rated Speed (r/min)</b>		3000				
<b>Maximum Speed (r/min)</b>		5000				
	<b>No Brake</b>	0.0206 E-4	0.037 E-4	0.177 E-4	0.277 E-4	1.13 E-4
	<b>With Brake</b>	0.0236 E-5	0.04 E-4	0.19 E-4	0.30 E-4	1.18 E-4
<b>Controller</b>	<b>Type</b>	Incremental, Share With 17 Bit Controller				
	<b>Encoder Resolution</b>	131072 p/rev				
<b>Structure</b>		IP65				
<b>Environmental Conditions</b>	<b>Ambient Temperature</b>	0°C~40°C Non-freezing, preservation -10°C~80°C Non-freezing				
	<b>Ambient Humidity</b>	20%~90%RH Non-condensing				
	<b>Ambience</b>	Indoors(no direct sunlight), Free From Corrosive Gas, Flammable Gas, Oil Mist, Dust, And Dirt.				
	<b>Altitude</b>	Max. 1000 m Above Sea Level				
	<b>Vibration</b>	under 20Hz 9.80665m/s <sup>2</sup> (1G)				
<b>Weight (kg)</b>	<b>No Brake</b>	0.42	0.5	1.2	1.6	3
	<b>With Brake</b>	0.72	0.8	1.5	2	3.8

50/100W

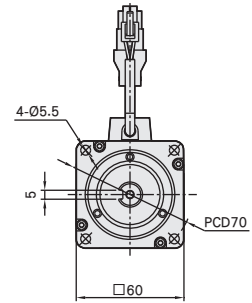
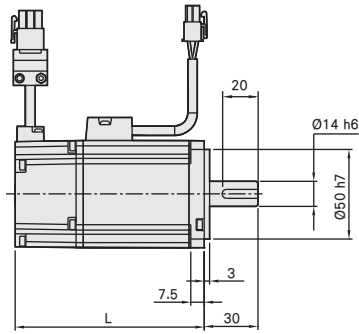
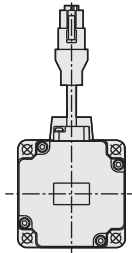
Model	50W	L
ECMA-C1040FES	No Brake	79.1
ECMA-C1040FFS	With Brake	109.1

Model	100W	L
ECMA-C20401ES	No Brake	100.6
ECMA-C20401FS	With Brake	130.6



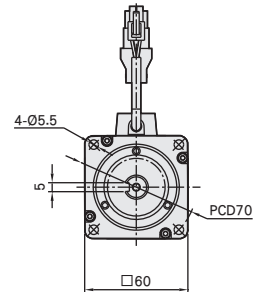
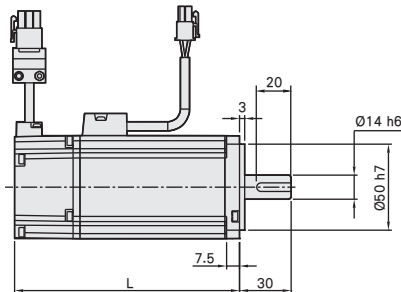
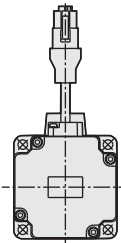
# 200W

Model	200W	L
ECMA-C20602ES	No Brake	105.5
ECMA-C20602FS	With Brake	141.6



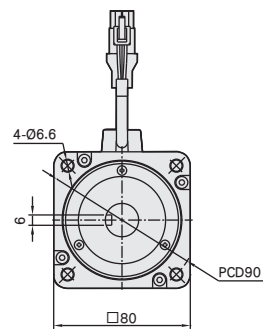
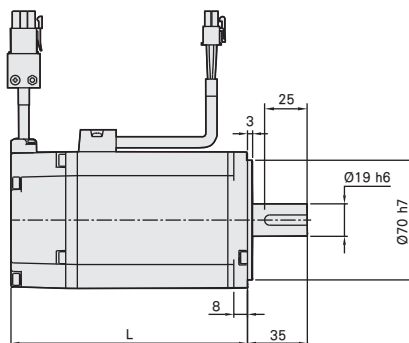
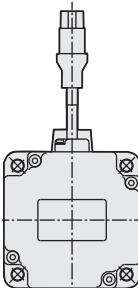
# 400W

Model	400W	L
ECMA-C20604ES	No Brake	130.7
ECMA-C20604FS	With Brake	166.8

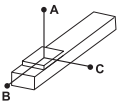
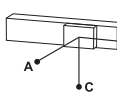
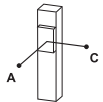

















# 750W

Model	750W	L
ECMA-C20807ES	No Brake	138.3
ECMA-C20807FS	With Brake	178



# Inquiry Sheet

TOYO Single-axis Actuator Inquiry Sheet												
<b>Customer</b>				<b>Register Date</b>				<b>Register Person</b>				
<b>Needs</b>	<b>Stroke (mm) :</b> <b>Speed (mm/s) :</b> <b>Payload (kg) :</b> <b>Repeatability Accuracy (mm) :</b> <input type="checkbox"/> ±0.1 <input type="checkbox"/> ±0.01 <input type="checkbox"/> ±0.04											
	<b>Work Piece Moment (mm)</b>											
		A	B	C	A	B	C	A	C			
<b>Motor Brand</b>				<b>Motor Model No.</b>								
<b>Motor Combination</b>	Ball Screw	<input type="checkbox"/> M		<input type="checkbox"/> BC		<input type="checkbox"/> BR		<input type="checkbox"/> BL		<input type="checkbox"/> BM		
	Belt	<input type="checkbox"/> L		<input type="checkbox"/> LU		<input type="checkbox"/> LD		<input type="checkbox"/> LT		<input type="checkbox"/> LL		
		<input type="checkbox"/> R		<input type="checkbox"/> RU		<input type="checkbox"/> RD		<input type="checkbox"/> RT		<input type="checkbox"/> RR		
<b>SENSOR Connect Method</b>	<input type="checkbox"/> Inside <input type="checkbox"/> Outside											
<b>Application</b>	<input type="checkbox"/> Pick&Place			<b>Figure</b>								
	<b>C C D Testing</b>	<input type="checkbox"/> Position Test										
		<input type="checkbox"/> Moving Test										
	<input type="checkbox"/> Processing Work											
	<input type="checkbox"/> Screw Fastening											
<input type="checkbox"/> Dispenser												
<input type="checkbox"/> Other												
<b>Usage Environment</b>	<input type="checkbox"/> Clean Room (Class)	Class 10	Class 100	Class 1000	<b>Remarks</b>							
	<input type="checkbox"/> General Environmen											
<b>Equipment For:</b> <input type="checkbox"/> Mass Production <input type="checkbox"/> Trial Run												
<b>Remarks :</b>												



# Support Fax Form

Support Fax No.

**+886-6-2025974**

Request date:

Reply date:

If you need technical help or selection problem, please fax to us, we will help you quickly

Name:

Title:

Industry:

Company:

Address:



Country:

Code:

Tel:

Ext:

Fax:

E-mail:

■ Please give us following informations for quickly reply.

\*Write your e-mail and you can get our related news and product informations.

1. Use where? \_\_\_\_\_
2. Annual use Quantity? \_\_\_\_\_
3. If not new design, what brand are you using now? \_\_\_\_\_

■ Product

- General  Clean Room
- Single-axis  Ball screw  Belt  Linear Motor  Belt linear Module  Ball screw  Belt  Linear Motor
- Multi-axis  Arm type  Gantry type  Belt linear Module
- Pole type  XZ type  Arm type  Gantry type
- Three-axis dispenser  Pole type  XZ type

■ Service

- Catalog needs  Product Demo  Applications Help  Quotation  Other \_\_\_\_\_

■ Question I Application description

Copy and fax.																			
---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Structure

Bullin Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

**MEMO**

Structure

Built-in Guideway  
Ball Screw Type  
GTH / GTY

Ball Screw Type  
ETH

Belt Type  
ETB / M

Clean Room  
Ball Screw Type  
ECH

Clean Room  
Belt Type  
ECB

Reference

# MEMO

 Taiwan: 0800-800-893

 China: 400-875-0009



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■ TOYO Automation Co., Ltd.

Address: No.50, Yongkehuan Road, Yongkang District,  
Tainan City, Taiwan.

Tel:+886-6-2021347 Fax:+886-6-2025974

■ TOYO Robot (Shuzhou) Co., Ltd.

Address: No 586, Zhenxin East Road, Zhangpu Town,  
Kunshan City, Jiangsu Province, China.

Tel:+86-512-86890880 Fax:+86-512-86890881

■ TOYO Automation (Shenzhen) Co., Ltd.

Address: 1208 Mingjun Business Center Huarong Road,  
Baoan District, Shenzhen City, China.

Tel:+86-755-81713415 Fax:+86-755-81713435



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