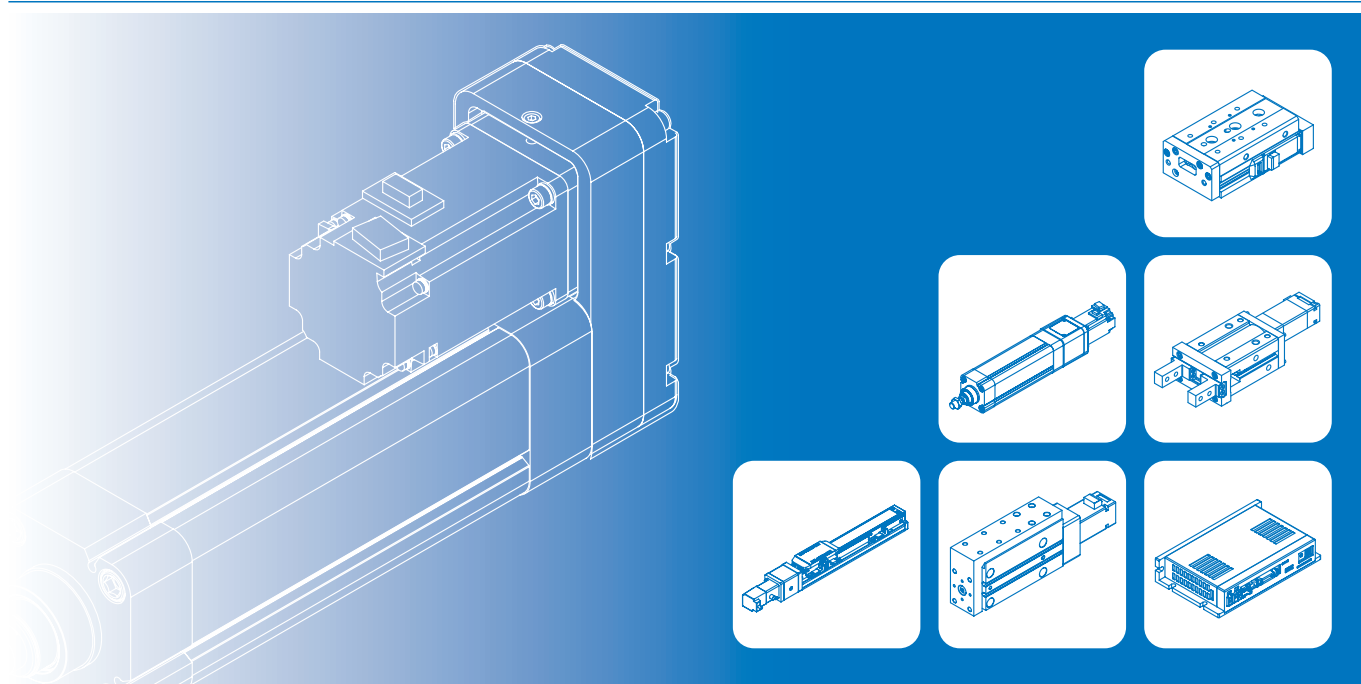


ELECTRIC ACTUATOR



ME*	Selector Table	4-2
	Applications.....	4-8
	Inner Structure	4-14
	SLIDER ELECTRIC ACTUATOR- BELT DRIVEN	
METFB	(Without Motor)	
	METFB-25	4-20
	METFB-32	4-26
	METFB-40	4-32
METB	(Without Motor) □42~□80	4-38
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METG	(Without Motor)	
	METG-4	4-42
	METG-5	4-46
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METS2	(Without Motor)	
	METS2-10	4-54
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	METS2-17	4-64
METS	(Without Motor)	
	METS-22	4-69
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	METI-32, 40, 50 New	4-74
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	ROD TYPE ELECTRIC ACTUATOR	
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	MEQG-5	4-85
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MEGT	(With Motor) 32~63	4-106
	COMPACT ELECTRIC ACTUATOR	
MEJQ	(With Motor) 16, 20 New	4-111
	MINIATURE ELECTRIC ACTUATOR	
MESS2	(With Motor) 16, 25	4-116
MESH2	(With Motor) 16, 20	4-120
MESF2	(With Motor) 16, 20	4-124
	ELECTRIC ROTARY ACTUATOR	
MERE	(With Motor) 10, 30	4-128
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MESBE	(With Motor) 32~80	4-144
	Motor Selector Table	4-150
CK*/ CM*	Controllers Selector Table	4-153

mindman

Hydraulic Cylinder

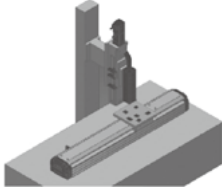
4-3

Applications for single axis

ELECTRIC ACTUATOR



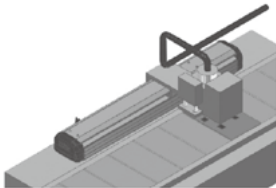
Suitable industry: PCB / CD / DVD / Semi-conductor / Packaging / Testing



Spray-Printing device for PCB substrate boards

Fixes the substrate board onto the electric cylinder. Use the character of equal-speed sliding to execute the spray printing.

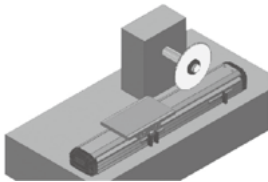
Use specifications
METG/ METS2/ METB/ METFB



Surface cleaning device for circuit boards

Fixes the plasma on to the motor slide and moves back and forth on top of the conveyor to clean surface for circuit boards.

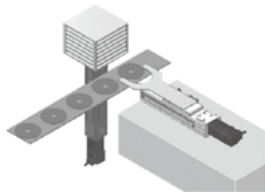
Use specifications
METG/ METS2/ METB/ METFB



Cutting device for PCB circuit boards

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

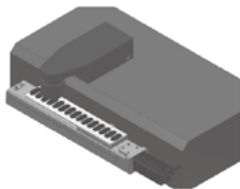
Use specifications
METG/ METS2/ METB/ METFB



Compact disc receiving device

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

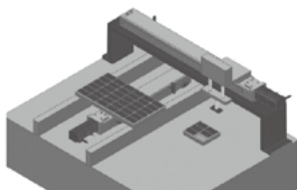
Use specifications
METG/ METS2/ METB/ METFB



IC printer device

Place the IC device on the electric cylinder. Use the character of equal-speed sliding and capable to adapt servo motor and stepping motor to execute the laser printing.

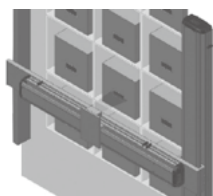
Use specifications
METG/ METS2



Aligning device for pick-and-place of IC boards

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

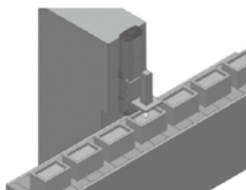
Use specifications
METG/ METS2/ METB/ METFB



Barcode scanning device

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

Use specifications
METG/ METS2/ METB/ METFB



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 specifications
METG/ METS2/ METB/ METFB

Applications for single axis



ELECTRIC ACTUATOR

mindman

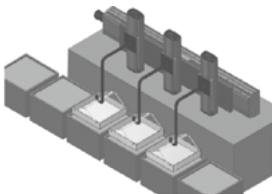
Suitable industry: Automotive / Component processing / Assembling / Surface processing / Mobile phones / Traditional manufacturing / Food / Raw material



Tire surface check machine

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

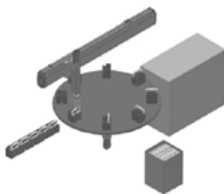
Use specifications
METG/ METS2/ METB/ METFB



Mobile device for surface processing

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

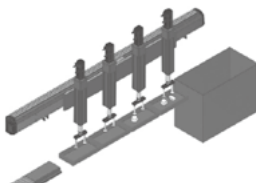
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Assembling device on disc machine

Install two single electric cylinders to combine an X-Y system. Then mount it onto the disc machine to do the components assembly.

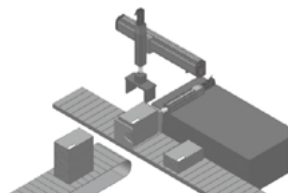
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ



Assembling device for small components

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

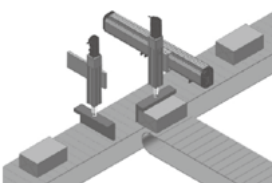
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2/ MEHC2 / MEHC3



Conveyance device for assembly lines

Utilizes uniaxial motor slides to assemble into a XY mechanism and performs conveyance of items on top of the conveyor.

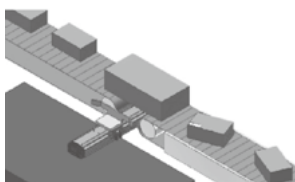
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2/ MEHC2 / MEHC3



Separator device for assembly lines

Utilizes motor slides to categorize products on the assembly line with conveyors.

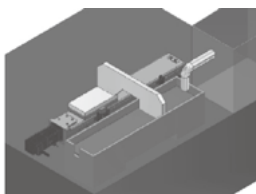
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ



Aligning device for packaging

Utilizes slides with servo motors to align products of different sizes on the moving conveyors, which substantially saves the working time.

Use specifications
MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Leveling mechanism for solvent surfaces

Utilizes the characteristics of motor slides moving at equal speeds to level the surface of glutinous solvents.

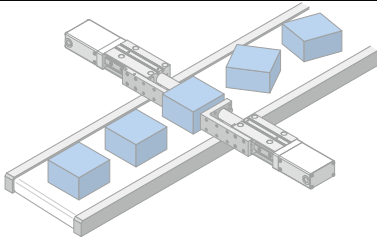
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

Applications for single / multi axis

ELECTRIC ACTUATOR



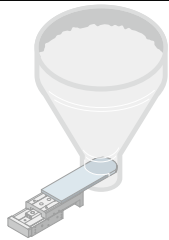
Suitable industry: Traditional manufacturing/ Food/ Raw material/ Surface processing



Conveyor belt product positioning

Install 2 sets of electric actuators on the left and right sides of the conveyor belt to perform product positioning.

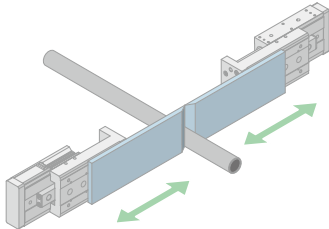
Use specifications
MEQI/ MESH2/ MESF2/ MESS2/ METI



Feed control

Install an electric actuator at the feed outlet to control the feed rate and volume.

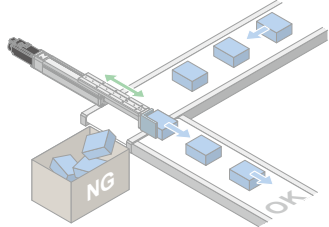
Use specifications
MEQI/ MESH2/ MESF2/ MESS2/ METI



Material cutting

Install 2 sets of electric actuators on the left and right sides of the conveyor belt to perform material cutting operations.

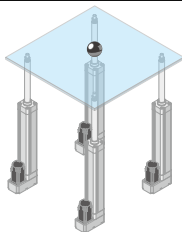
Use specifications
MEQI/ MESH2/ MESF2/ MESS2/ METI



Product pushing

Install a rod-type electric actuator on the side of the conveyor belt to push the workpiece onto another conveyor belt.

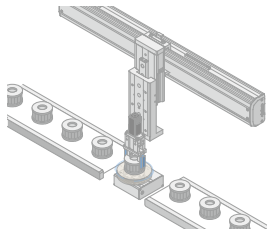
Use specifications
MEQG/ MEQI/ METI



Platform lifting / tilting

Install 4 rod-type electric actuators at the four corners of the platform to control the movement or stopping position of the central spherical object.

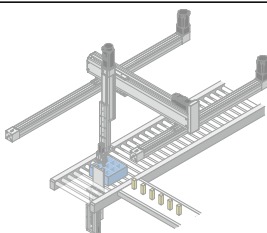
Use specifications
MEQG/ MEQI/ METI



Pulley grinding and transfer device

Combine a single-axis electric cylinder with a slide table and gripper to form an X-Z dual-axis mechanism. Attach sandpaper to a rotary electric actuator to perform surface grinding on the workpiece, then transfer the workpiece to another conveyor belt.

Use specifications
METG/ METS2/ METB/ METFB/ MESS2/ MEHC2/ MEHC3/ MERE



Placement of box contents and blocking device

Combine 3 single-axis electric slide tables to form an X-Y-Z mechanism. Use a gripper for handling operations. The slide electric actuator blocking the box below can also be replaced with an MESBE electric stopper actuator.

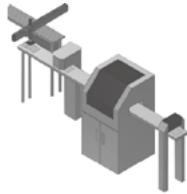
Use specifications
METG/ METS2/ METB/ METFB/ MESS2/ MEHC2/ MEHC3/ MESBE

Applications for multi axis

ELECTRIC ACTUATOR



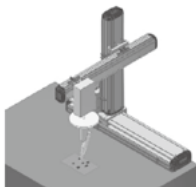
Suitable industry: PCB circuit boards / CD / DVD / Mobile phones



Conveyance device for circuit boards

Assembles two uniaxial motor slides into a X-Z biaxial mechanism and conveys the circuit board across left and right as well as up and down.

Use specifications
METG/ METS2/ METB/ METFB



Auto-soldering device

Fixes soldering device onto the X-Y-Z axes assembled from uniaxial motor slides, which can solder for circuit board components.

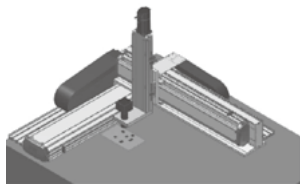
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Piling device for circuit boards

Utilizes uniaxial motor slides to assemble into X-Y-Z axes, which can be used on receiver mechanism for circuit board assembly lines.

Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Visual checking device for CCD imaging

Fixes the visual system onto the X-Y-Z axes and performs AOI checks on the appearance of PCB boards.

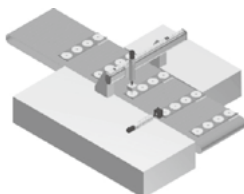
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Piling device for compact discs

Utilizes uniaxial motor slides to assemble into a X-Y-Z axes, which can be used on receiver mechanism for compact disc assembly lines.

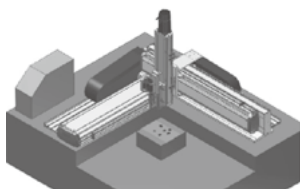
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Ultra-violet exposure device for compact discs

Utilizes uniaxial motor slides to assemble into a X-Z bi-axial mechanism, which can be used on ultra-violet exposure devices for compact discs.

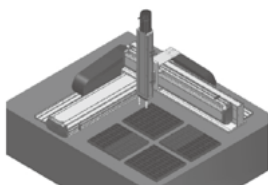
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Screw-tightening device

Utilizes the X-Y-axis mechanism for pick-and-place of screws.

Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2



Pick-and-place device for small components

Utilizes uniaxial motor slides to assemble into X-Y-Z axes, which can be used on pick-and-place devices for small components.

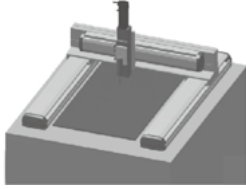
Use specifications
METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

Applications for multi axis

ELECTRIC ACTUATOR



Suitable industry: LCD / Automotive / Machine processing / Solar / Food

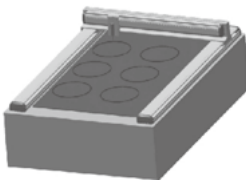


Rubberizing device for large-size LCD glass substrate boards

Utilizes two synchronous X-axis motor slides and one Y-axis slide along with Z-axis to assemble into one package of high-speed rubberizing devices for LCD glass substrate boards.

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

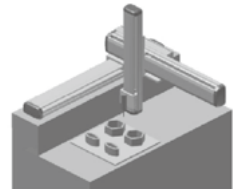


Cutting for glass substrate boards

Utilizes two synchronous X-axis motor slides with one Y-axis slide to assemble into one package of simple cutting mechanism for glass boards.

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

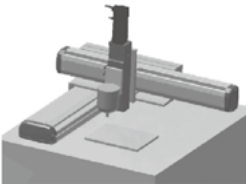


Coating device for various small components

Assembles three uniaxial motor slides into a X-Y-Z mechanism 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 specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

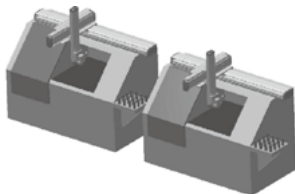


Mobile device for spray coating

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

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ/ MESS2/ MESF2/ MESH2

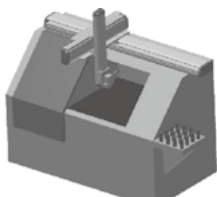


Pick-and-place device for processed parts from machine tools

Utilizes uniaxial motor slides to assemble into X-Y-Z axes 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 specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ

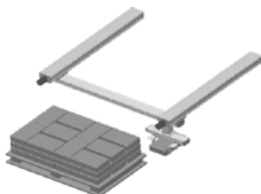


Pick-and-place device for processed parts from machine tools

Utilizes uniaxial motor slides to assemble into a X-Y-Z axes that can be installed onto CNC machine tools as the pick-and-place mechanism for loading and unloading of processed parts, with a cost saving more than 6-axis mechanical arms.

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ

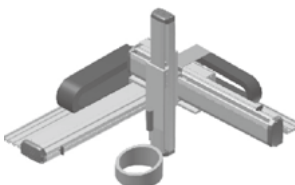


Conveyance device for large items

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

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ

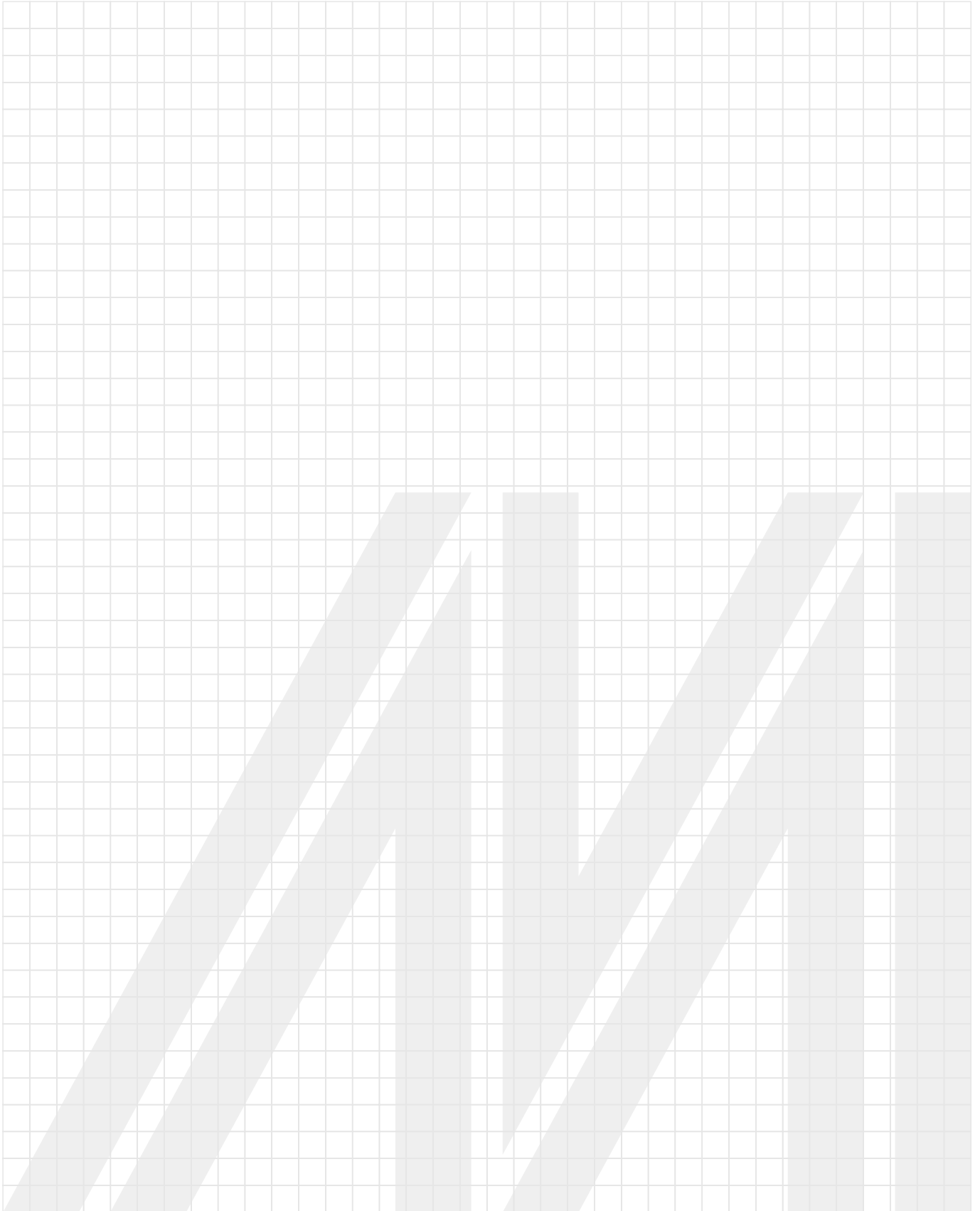


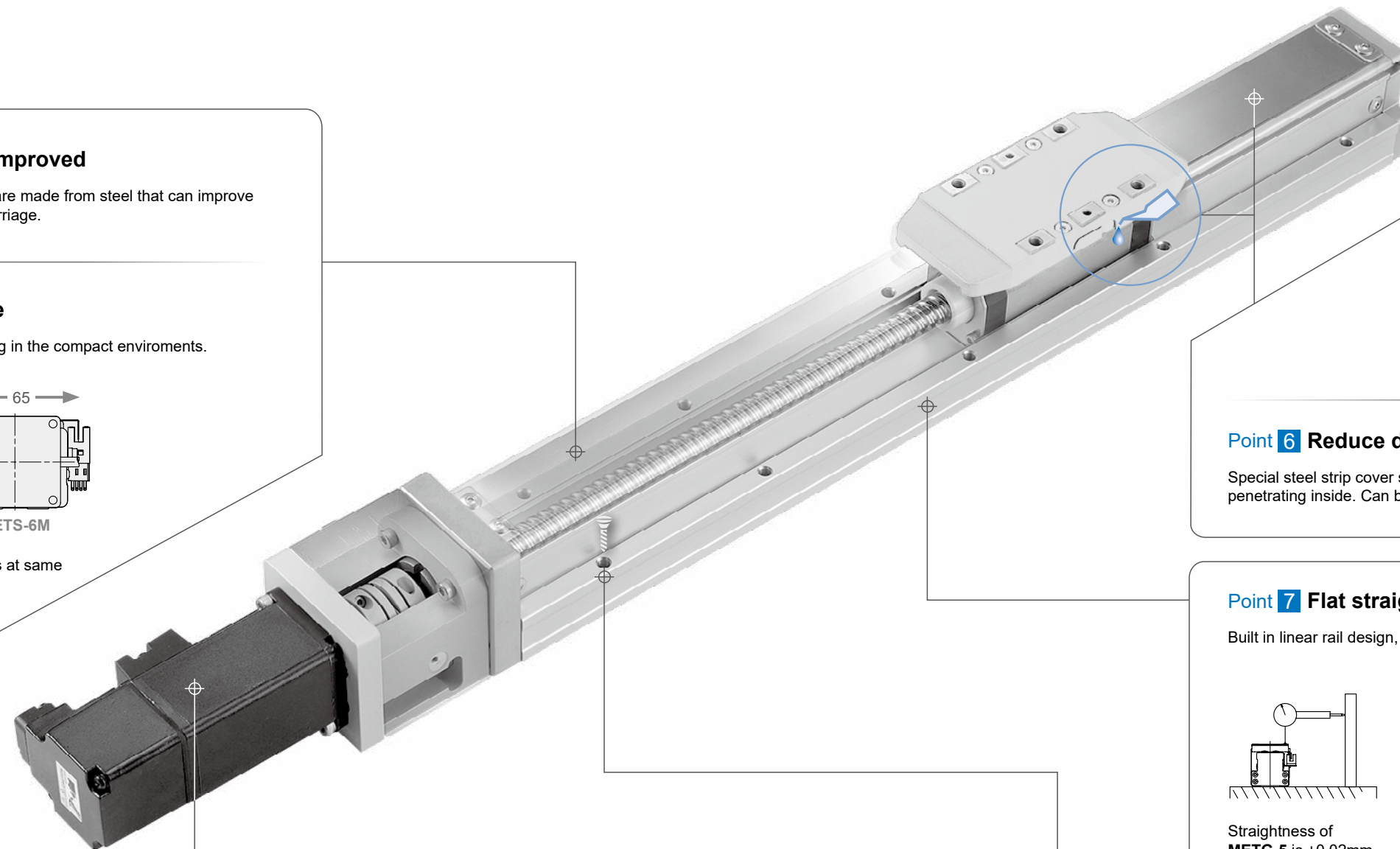
3-Dimensional rubberizing device

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

Use specifications

METG/ METS2/ METB/ METFB/ MEQI/ MEQG/ MEJQ



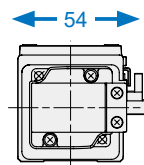


Point 1 Rigidity improved

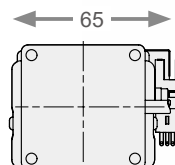
Actuator body and carriage are made from steel that can improve the rigidity of body and carriage.

Point 2 Smaller size

Reduced width that can fitting in the compact enviroments.



METG-5

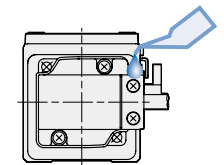


METS-6M

* Compare with METS series at same condition (30 kg padload).

Point 5 Easy to maintain

External greasing design, easy maintenance without removing the cover.

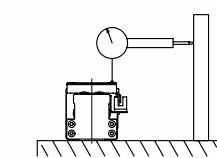


Point 6 Reduce dust

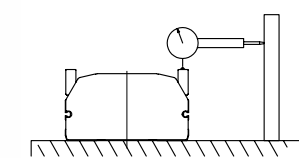
Special steel strip cover sealing design can prevent dirt and foreign objects from penetrating inside. Can be used in clean room environment.

Point 7 Flat straightness

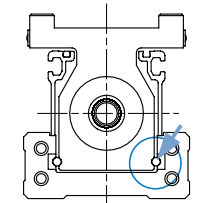
Built in linear rail design, straightness and flatness are highly improved to $\pm 0.02\text{mm}$.



Straightness of
METG-5 is $\pm 0.02\text{mm}$.
* Measure length is 800mm.



Straightness of
METS-10 is $\pm 0.05\text{mm}$.
* Measure length is 1000mm.



Point 3 Motor brand

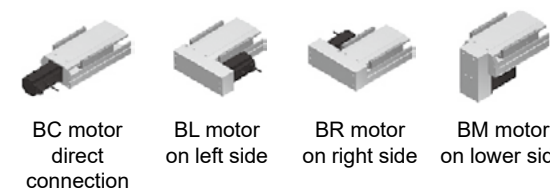
Customer specified servo motor.

Standard suitable motor brands			
Mitsubishi	Panasonic	Yaskawa	Delta

© Please consult our sales personnel for other motor specifications.

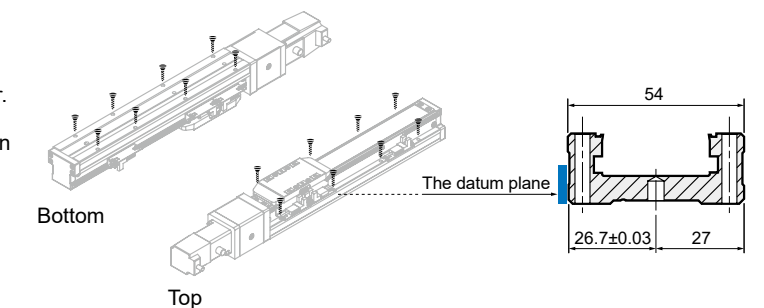
Point 4 Motor assembly location

Multiple motor installation positions for added flexibility in tool design.

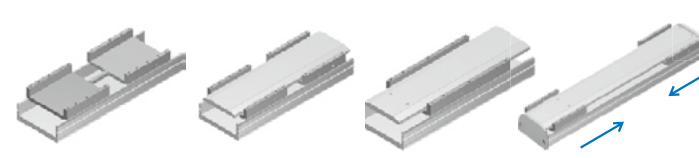


Point 8 Easy assemble

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.



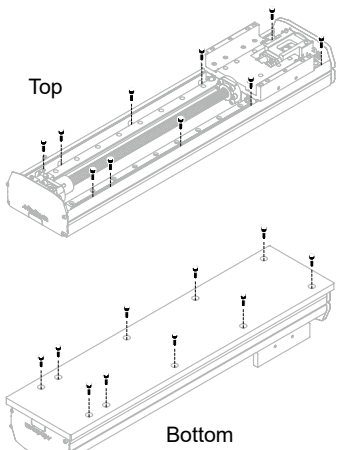
Point 1 Various slide options



Double slider (Dual drive control) Double slider (Single control) Extended slide Alignment

Point 2 Easy assemble

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



Top

Bottom

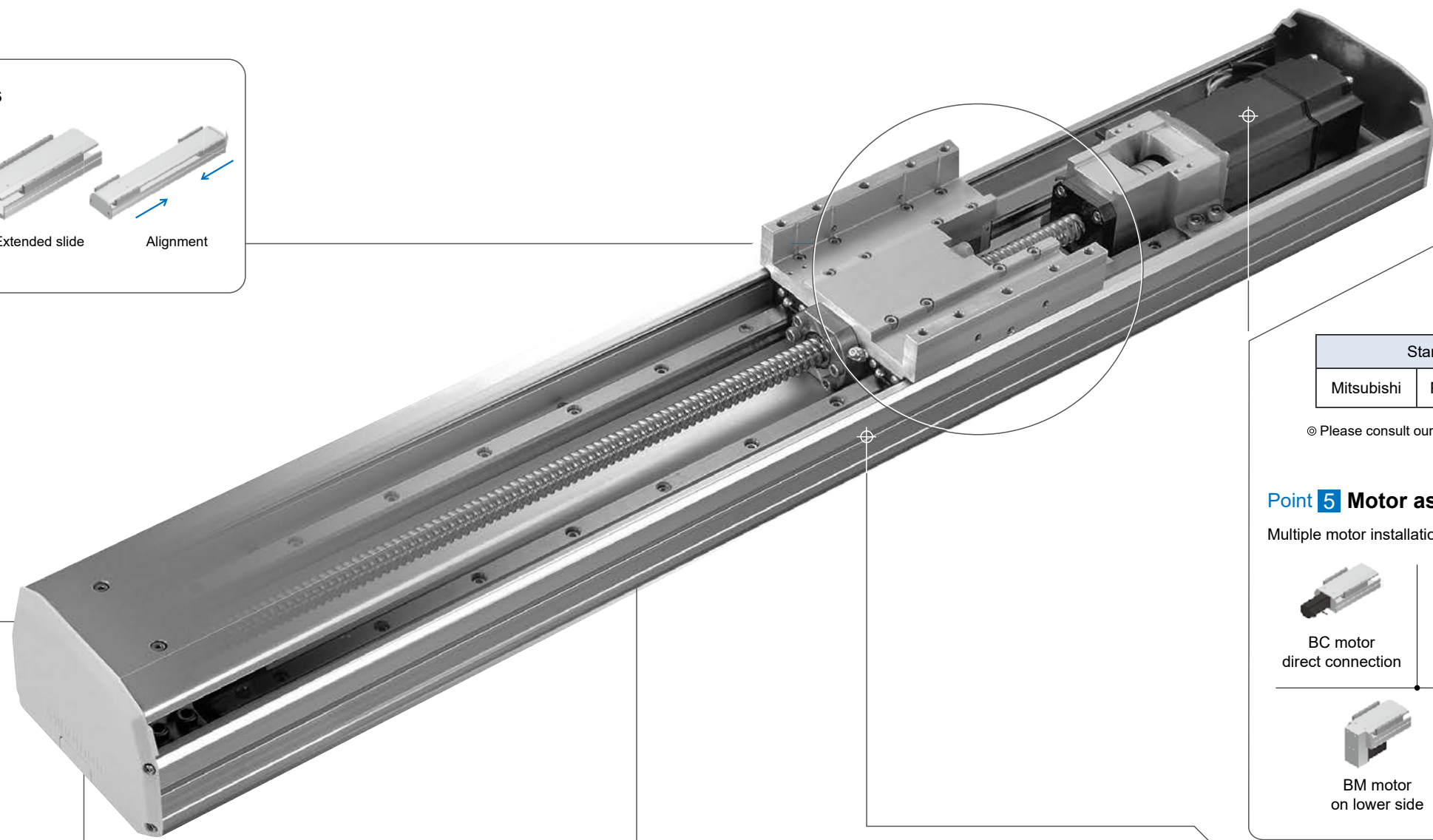
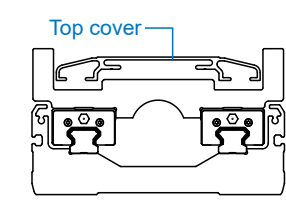
Point 3 High rigidity body and cover

High rigidity mainframe and cover

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

Torsion resist top lid

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



Point 4 Motor brand

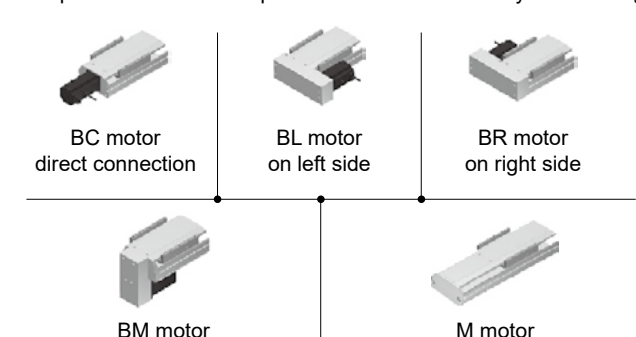
Customer specified servo motor.

Standard suitable motor brands			
Mitsubishi	Panasonic	Yaskawa	Delta

© Please consult our sales personnel for other motor specifications.

Point 5 Motor assembly location

Multiple motor installation positions for added flexibility in tool design.



BC motor direct connection BL motor on left side BR motor on right side

BM motor on lower side M motor build-in the structure

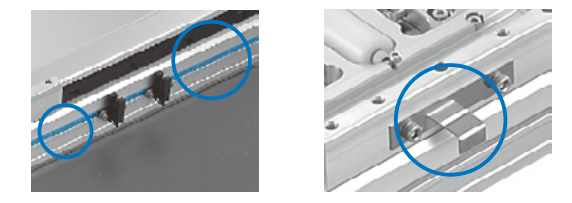
Point 7 Ball screw lead

Can customize screw specification and brand to match different precision and speed.

Screw lead pitch	
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm

Point 6 Sensor switch

1. Adjustable plug-in set up, can be installed on both sides.
2. Sensors' position are adjustable in designed grooves.



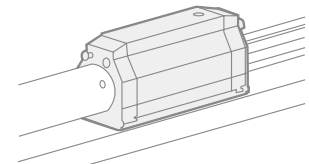
External sensor External sensor trigger device

Point 1 Rigidness improved

Actuator body and carriage are made from steel that can improve the rigidness of body and carriage.

Point 2 Built-in circular guideway

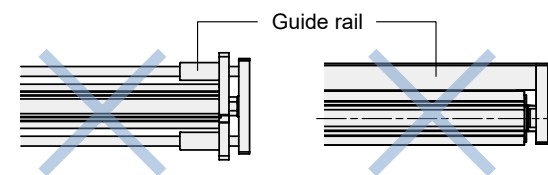
With built-in circular guideway, it can much improve torque and radial load. It can improve vibration while actuator stop working, and the maximum of stroke can be 800mm. Rod prevent-reverse accuracy can be 0 degree and hight improve the quality of product.



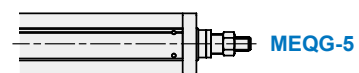
* Rod prevent-reverse accuracy can be 0 degree.

Point 3 Smaller

No need to add additional ancillary guide, decreasing space for location.



Additional guide rail structure is needed for anti-rotating accuracy. Rod prevent-reverse accuracy can be $\pm 0.05^\circ$.



Rod prevent-reverse accuracy can be 0° .

Point 4 Motor brand

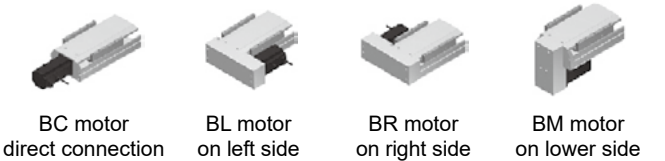
Customer specified servo motor.

Standard suitable motor brands			
Mitsubishi	Panasonic	Yaskawa	Delta

© Please consult our sales personnel for other motor specifications.

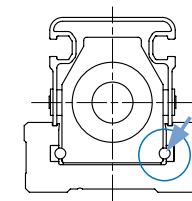
Point 5 Motor assembly location

Multiple motor installation positions for added flexibility in tool design.



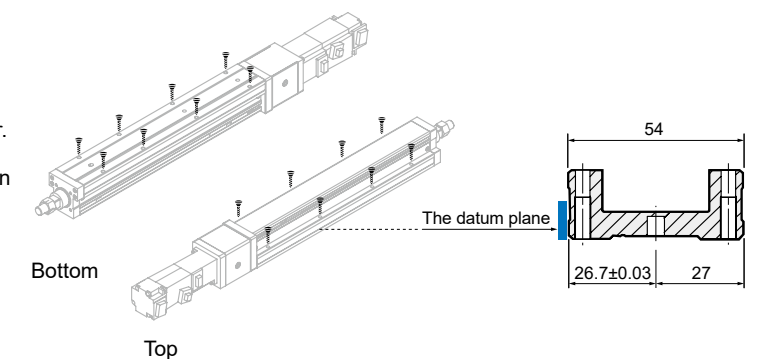
Point 6 Flat straightness

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



Point 7 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.



METFB-25 series

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Selection table



Applications



Measuring tools



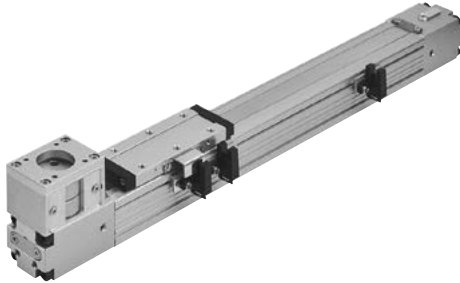
Reference data



Motor selection



Controller



Motor type Servo / Step Transmission Timing belt

Environment Standard Guide type Linear guide

Specification

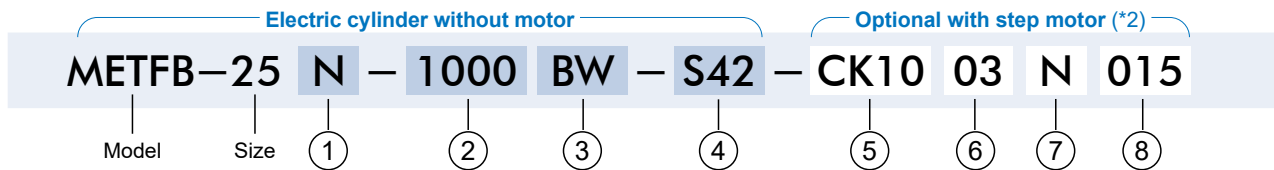
Model	METFB-25
Positioning repeatability (mm)	±0.05
Lead (mm/rev)	50
Belt pitch (mm)	2
Stroke (mm)	100~1000
No-load torque (N.m)	0.1
Slot-type photomicro sensor	RLT link

Motor type	AC servo	Step
Power output / size	50W 100W	□42
Max. speed *1 (mm/s)	1500	500
Rated load *2	Horizontal (kg)	1.7 3.5 3.2
	Vertical (kg)	— —

*1. Acceleration and deceleration values are set to 0.5 second.

*2. Not available for vertical installation.

Order example



① **Guide installation**

N	Without guide
GR	Guide right side
GL	Guide left side

② **Stroke**

100~1000 mm

③ **Motor position**

BW	Top side
BM	Down side

④ **Flange (For motor installation)**

Applicable motor brand *1	Dimensions
M Mitsubishi	10 50/100W Servo
M Yaskawa	
M Delta	
P Panasonic	
S Mindman	42 □42 Step NEMA 17
B	

⑤ **Controller** **Motor**

CK10	SM (for S42)
CM20 *	BM (for B42)

* Sensors would be needed.

⑦ **I/O type**

N	NPN
----------	-----

⑥ **Motor + Encoder cable**

01	1 m (CM20 only)
015	1.5 m (CK10 only)
03	3 m (standard)
05	5 m

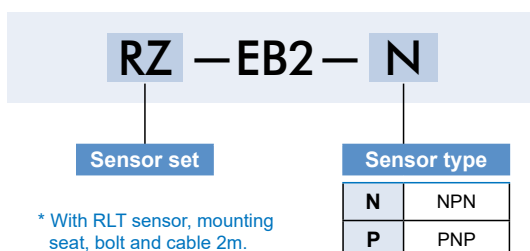
⑧ **I/O cable length**

015	1.5 m (standard)
03	3 m

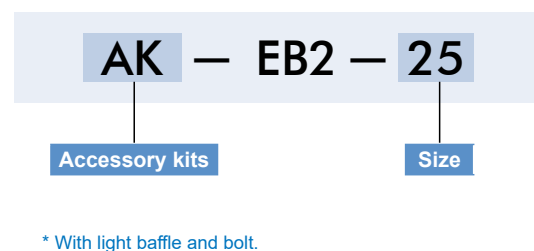
*1. Motor not included. Please refer to the "Motor Selection Table" for details. [link](#)

*2. For the optional transmission cable (CK10-C035) for controller management. [link](#)

Slot-type photomicro sensor set



Accessory kits



METFB-25 Guide installtion & Sensor mounting

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Rotary Actuator

Clamp Cylinder

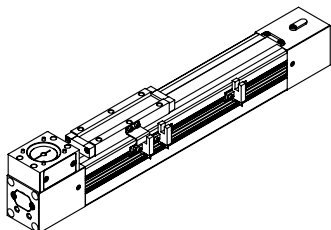
End of Arm Tooling

Electric Actuator

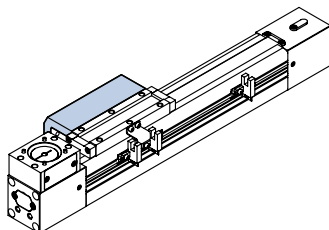
Auxiliary Equipment

Hydraulic Cylinder

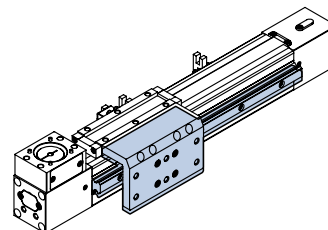
Guide installtion



N Without guide

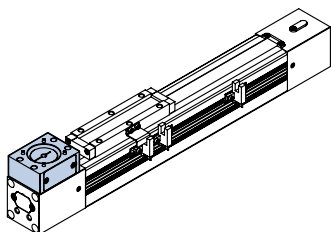


GR Guide right side

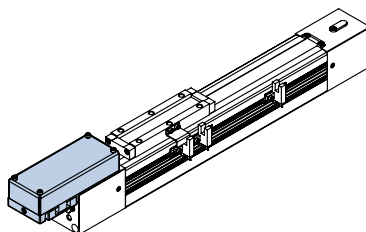


GL Guide left side

Motor position

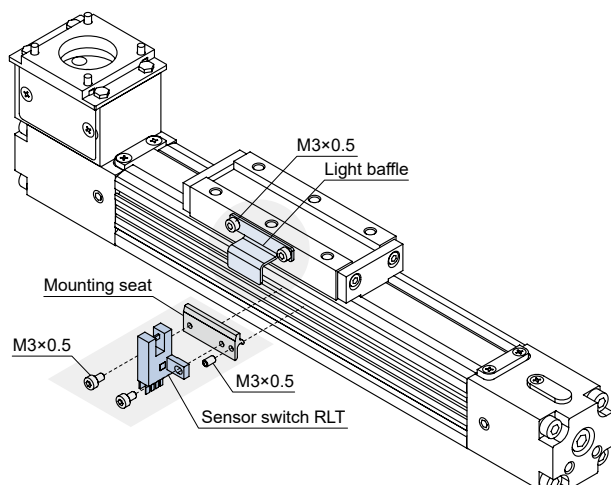


BW Top side



BM Down side

Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	Mounting seat (×1)	Bolt (×1)	Bolt (×2)

* With cable 2m.

Accessory kits

Light baffle (×1)	Bolt (×2)

Weight

Unit: kg

Model	Basic weight METFB-25N	Stroke 100 mm METFB-25N	Basic weight (with guide) METFB-25G*	Stroke 100 mm (with guide) METFB-25G*
Size				
25	0.97	0.18	1.3	0.27

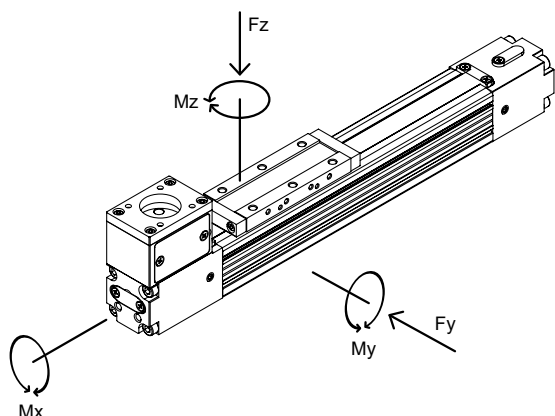
* The table lists the weight of motor mounting on top.

METFB-25 Capacity

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Mindman



Forces & Moments

Model		Mx	My	Mz	Fy	Fz
		Max. allowed moment (N.m)			Max. allowed load(N)	
METFB-25	Without guide	5	12	12	—	300
	With guide	38	42	42	2400	2700

Attention: In case of undefinable situations the above max. values have to be reduced by 10~20%.

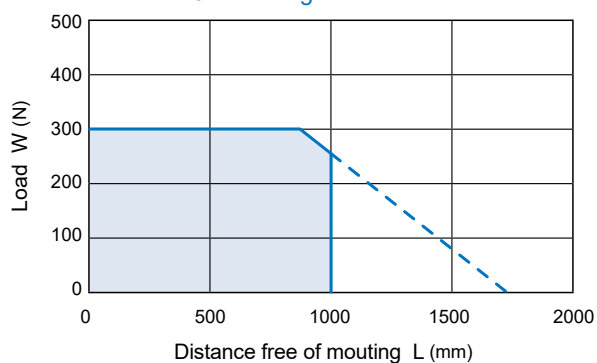
Please refer to the following formula when combined loads are applied.

$$\frac{M_{xA}}{M_x} + \frac{M_{yA}}{M_y} + \frac{M_{zA}}{M_z} + \frac{F_{yA}}{F_y} + \frac{F_{zA}}{F_z} \leq 1$$

* The A letters show the calculated value.

Positioning of cylinder mountings

METFB-25 Without guide



METFB-25 With guide

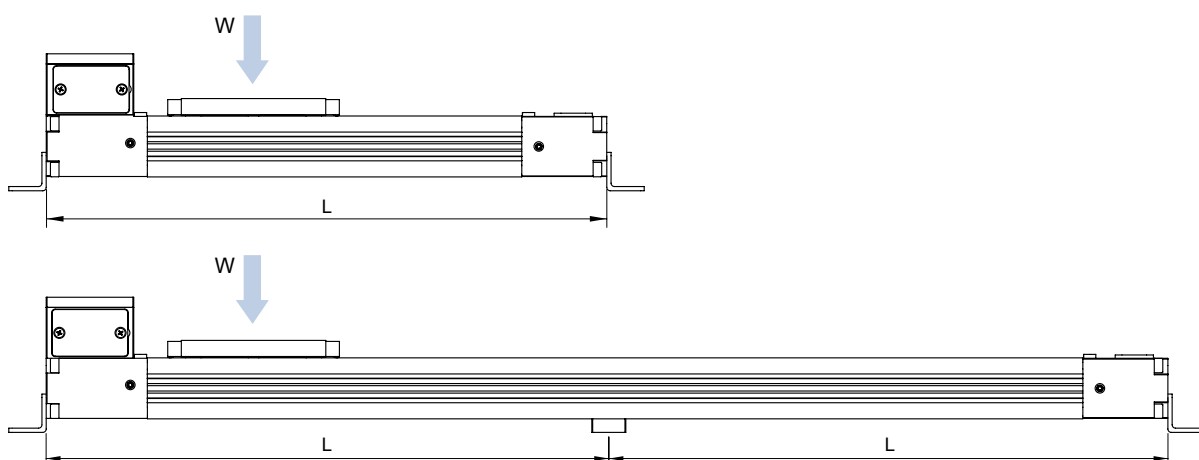
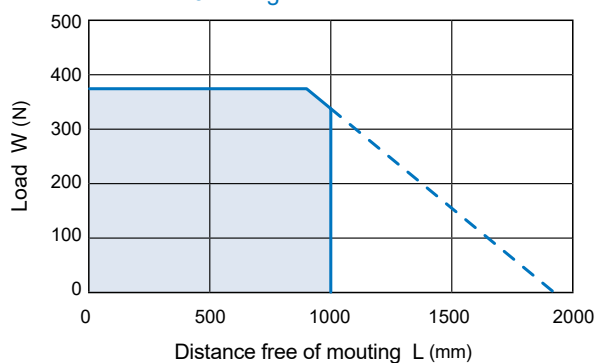


Diagram information

- Calculated deflections without support of 0.5~1 mm allow exceeding of the approved limits.
- Calculated deflections without support of > 1~1.5 mm require reduction of approved limits.

METFB-25 Dimensions

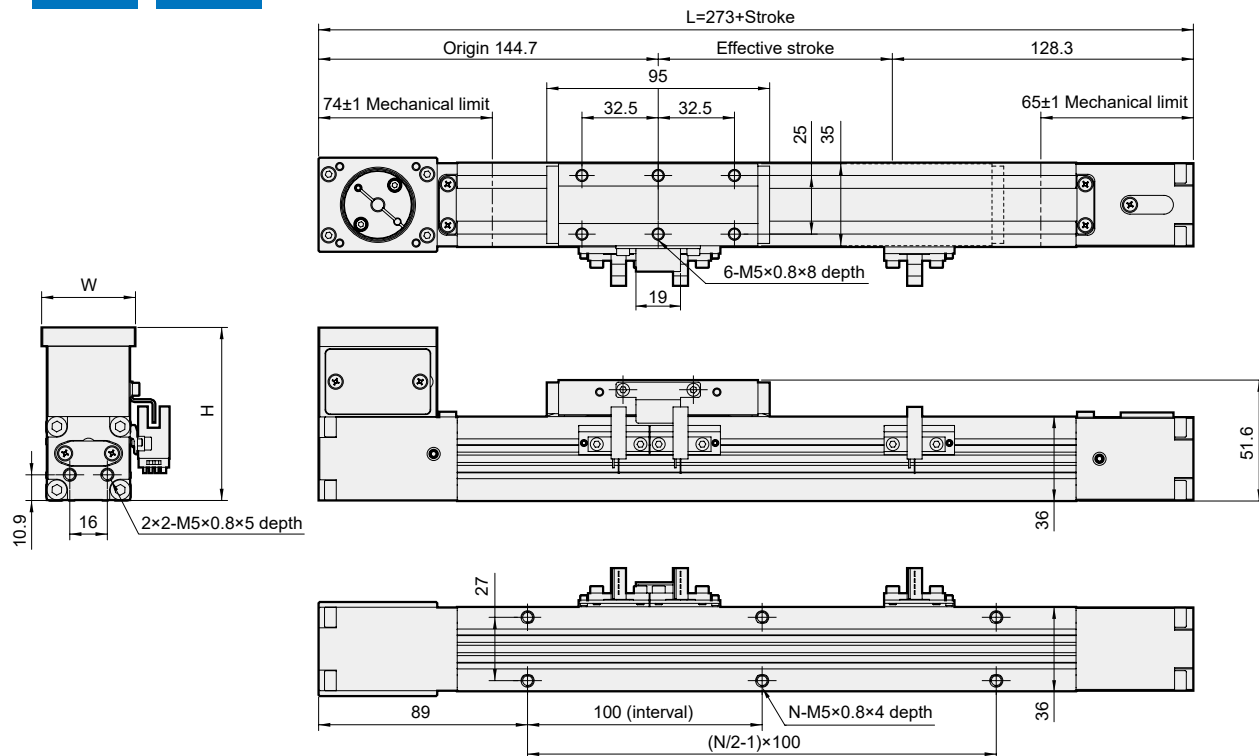
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



N

BW

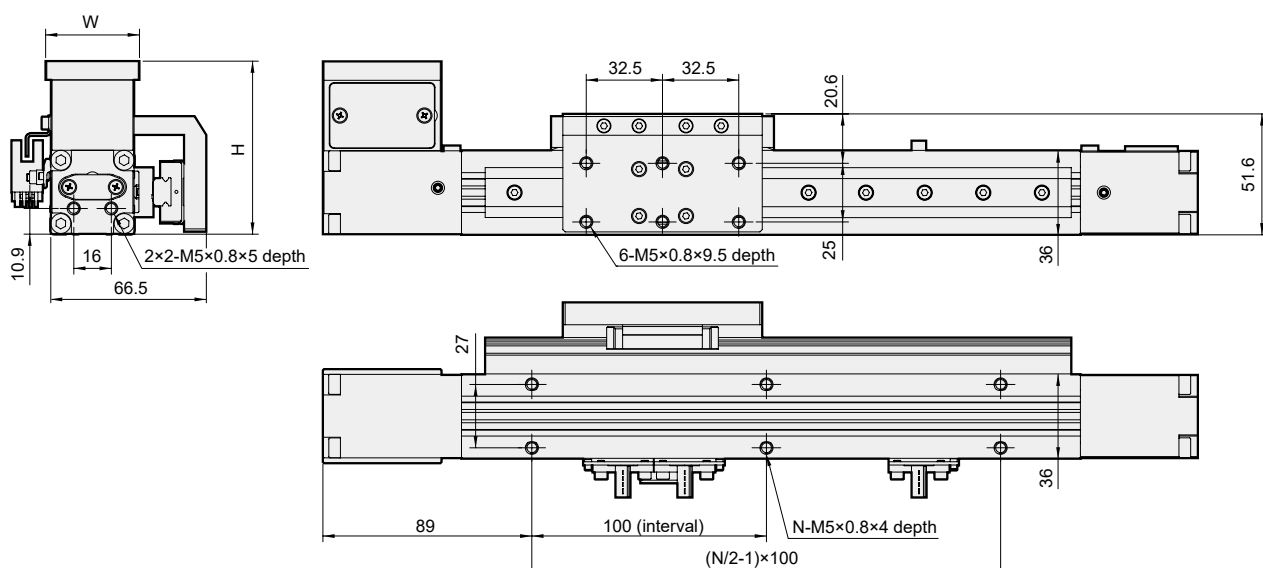
Without guide • Motor top side



GL

BW

Guide left side • Motor top side



Unit: mm

Stroke Code	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24

Stroke Code	Servo	Step
W	40	42
H	73.8	71.8

METFB-25 Dimensions

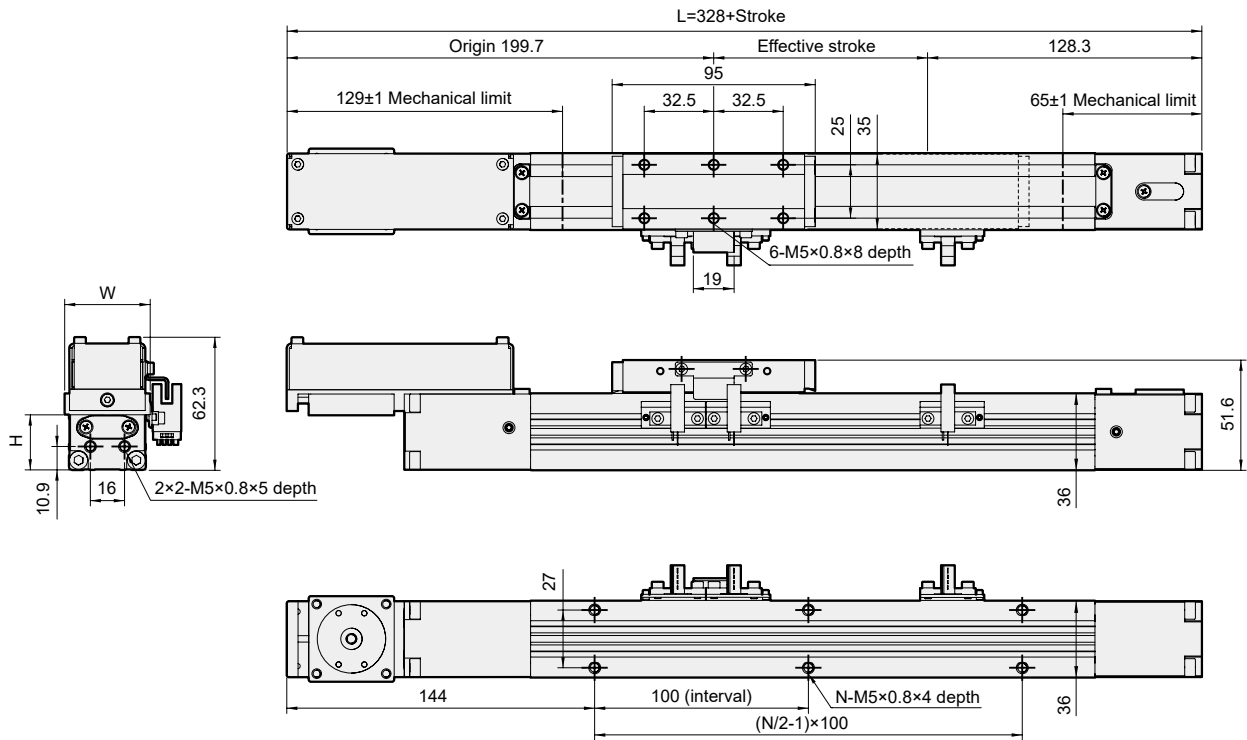
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



N

BM

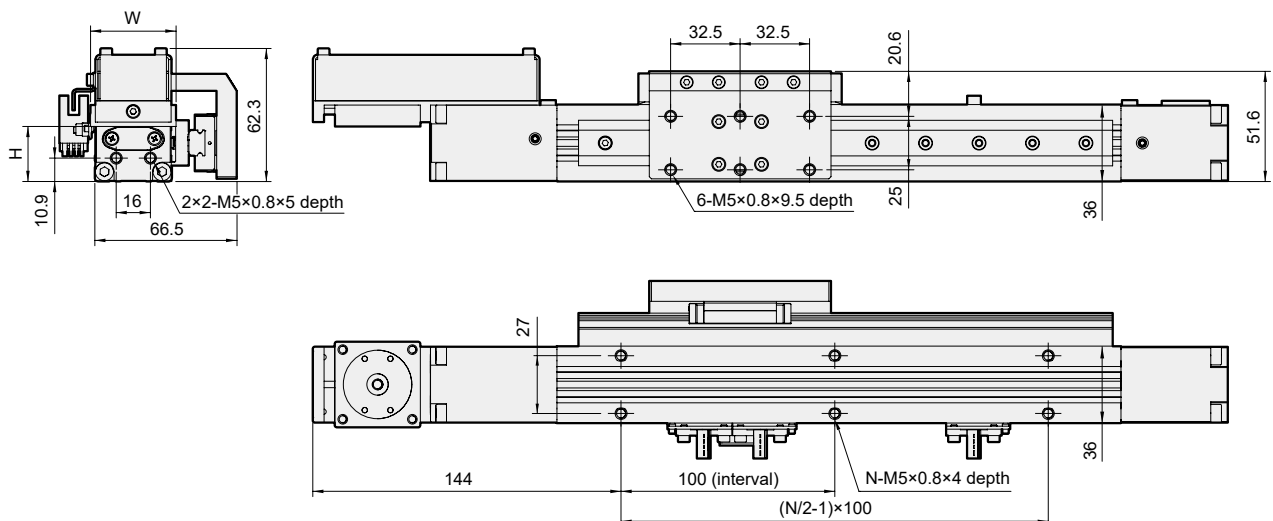
Without guide • Motor down side



GL

BM

Guide left side • Motor down side



Unit: mm

Stroke Code	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L	428	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24

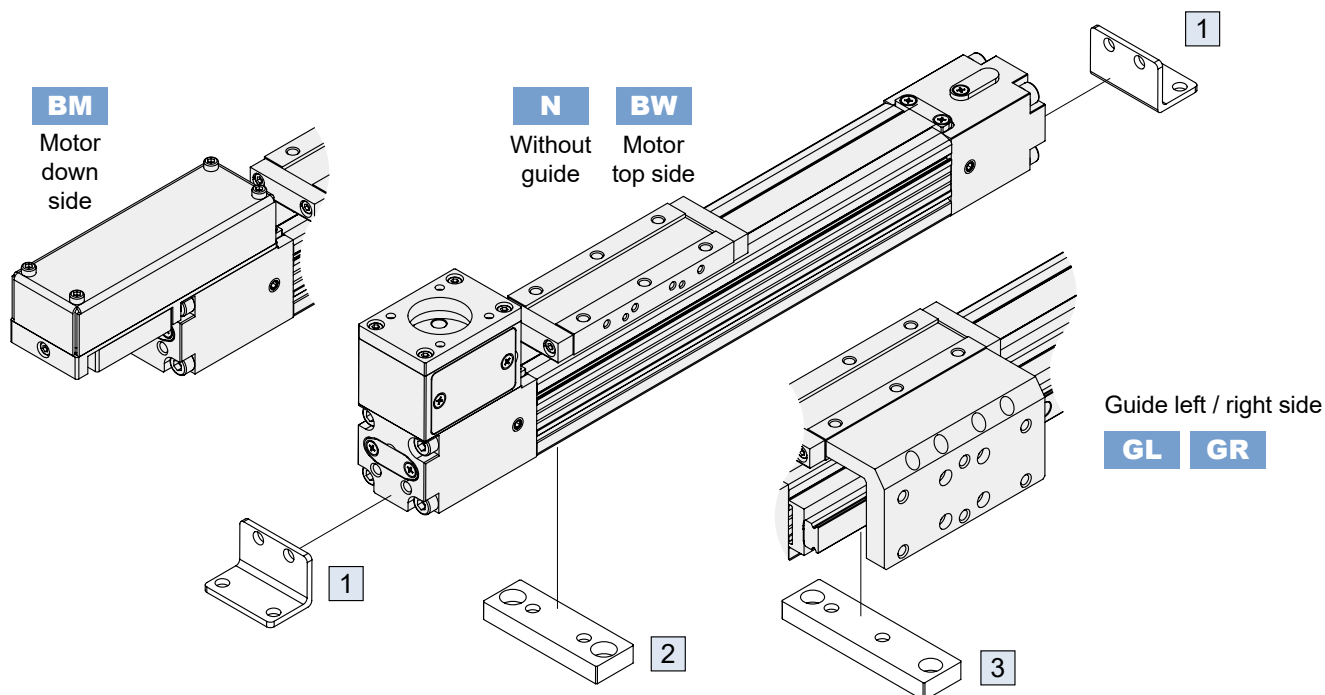
Stroke Code	Servo	Step
W	40	42
H	25.8	25.8

METFB-25 Mounting accessories

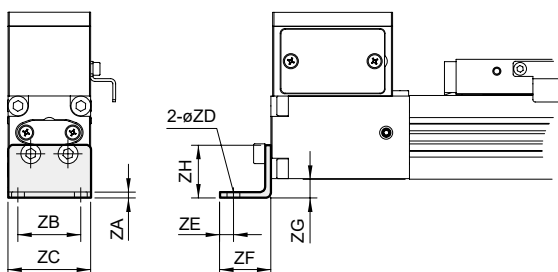
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



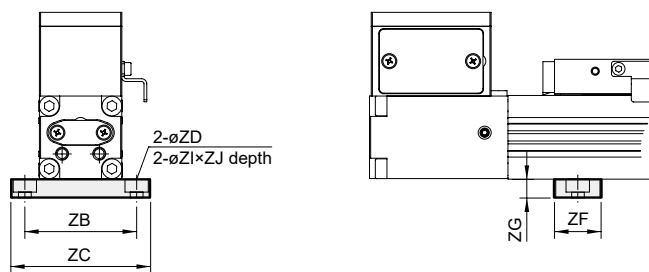
Mindman



1 End cover bracket (2pcs/set)

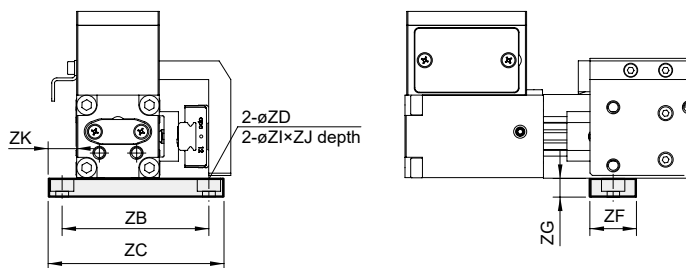


2 Mid section support *Applicable for (N) without guide.



* Not applicable for (BM) motor down side.

3 Mid section support * Applicable for (GR / GL) with guide.



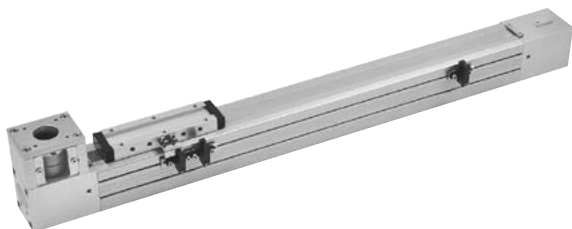
Unit: mm													Order number
Item	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	Weight (g)	
1	2.5	27	35.5	5.5	6	22	8	22.6	—	—	—	27	LB-EB2-25
2	—	48	60	5.5	—	20	8	—	10	5.5	—	21	MS-EB2-25
3	—	63	75	5.5	—	20	8	—	10	5.5	12	27	MS-EB2-25G

METFB-32 series

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



- Selection table
- Applications
- Measuring tools
- Reference data
- Motor selection
- Controller



Motor type	Servo / Step	Transmission	Timing belt
Environment	Standard	Guide type	Linear guide

Specification

Model		METFB-32	
Positioning repeatability	(mm)	±0.05	
Lead	(mm/rev)	72	
Belt pitch	(mm)	3	
Stroke	(mm)	100~2000	
No-load torque	(N.m)	0.2	
Slot-type photomicro sensor		RLT	

Motor type		AC servo		Step
Power output / size		200W	400W	□42
Max. speed *1		2400		720
Rated load *2	Horizontal (kg)	5	10	3.5
	Vertical (kg)	—		—

*1. Acceleration and deceleration values are set to 0.5 second.

*2. Not available for vertical installation.

Order example

Electric cylinder without motor				Optional with step motor (*2)			
METFB-32	N	1000	BW	S42	CK10	03	N 015
Model	Size	①	②	③	④	⑤	⑥

①	Guide installation	④	Flange (For motor installation)	⑤	Controller	Motor	⑥	Motor + Encoder cable																																							
	<table> <tr><td>N</td><td>Without guide</td></tr> <tr><td>GR</td><td>Guide right side</td></tr> <tr><td>GL</td><td>Guide left side</td></tr> </table>	N	Without guide	GR	Guide right side	GL	Guide left side		<table> <tr> <th>Applicable motor brand *1</th><th colspan="2">Dimensions</th></tr> <tr> <td rowspan="3">M</td><td>Mitsubishi</td><td rowspan="3">40</td><td rowspan="3">200/400W Servo</td></tr> <tr> <td>Yaskawa</td></tr> <tr> <td>Delta</td></tr> <tr> <td>P</td><td>Panasonic</td><td>20</td><td>200W Servo</td></tr> <tr> <td></td><td></td><td>40</td><td>400W Servo</td></tr> <tr> <td>S</td><td rowspan="2">Mindman</td><td rowspan="2">42</td><td rowspan="2">□42 Step NEMA 17</td></tr> <tr> <td>B</td></tr> </table>	Applicable motor brand *1	Dimensions		M	Mitsubishi	40	200/400W Servo	Yaskawa	Delta	P	Panasonic	20	200W Servo			40	400W Servo	S	Mindman	42	□42 Step NEMA 17	B		<table> <tr> <td>CK10</td><td>SM (for S42)</td></tr> <tr> <td>CM20 *</td><td>BM (for B42)</td></tr> </table>	CK10	SM (for S42)	CM20 *	BM (for B42)		<table> <tr> <td>01</td><td>1 m (CM20 only)</td></tr> <tr> <td>015</td><td>1.5 m (CK10 only)</td></tr> <tr> <td>03</td><td>3 m (standard)</td></tr> <tr> <td>05</td><td>5 m</td></tr> </table>	01	1 m (CM20 only)	015	1.5 m (CK10 only)	03	3 m (standard)	05	5 m
N	Without guide																																														
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P	Panasonic	20	200W Servo																																												
		40	400W Servo																																												
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CK10	SM (for S42)																																														
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01	1 m (CM20 only)																																														
015	1.5 m (CK10 only)																																														
03	3 m (standard)																																														
05	5 m																																														
②	Stroke																																														
	100~2000 mm																																														
③	Motor position																																														
	<table> <tr><td>BW</td><td>Top side</td></tr> <tr><td>BM</td><td>Down side</td></tr> </table>	BW	Top side	BM	Down side																																										
BW	Top side																																														
BM	Down side																																														
				⑦	I/O type		⑧	I/O cable length																																							
					<table> <tr> <td>N</td><td>NPN</td></tr> </table>	N	NPN			<table> <tr> <td>015</td><td>1.5 m (standard)</td></tr> <tr> <td>03</td><td>3 m</td></tr> </table>	015	1.5 m (standard)	03	3 m																																	
N	NPN																																														
015	1.5 m (standard)																																														
03	3 m																																														

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. For the optional transmission cable (CK10-C035) for controller management.

Slot-type photomicro sensor set

RZ

EB2

N

Sensor set

Sensor type

N	NPN
P	PNP

* With RLT sensor, mounting seat, bolt and cable 2m.

* With RLT sensor, mounting seat, bolt and cable 2m.

Accessory kits

AK	EB2	32
Accessory kits		Size

* With light baffle and bolt.

METFB-32 Guide installtion & Sensor mounting

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Rotary Actuator

Clamp Cylinder

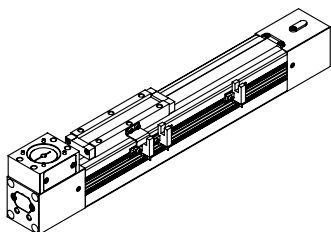
End of Arm Tooling

Electric Actuator

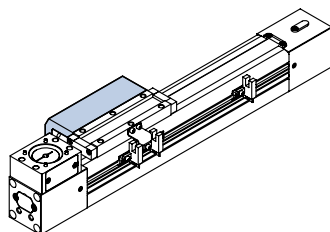
Auxiliary Equipment

Hydraulic Cylinder

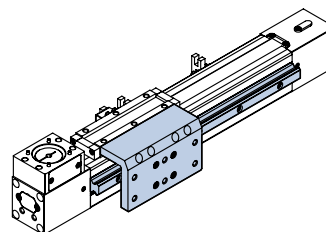
Guide installtion



N Without guide

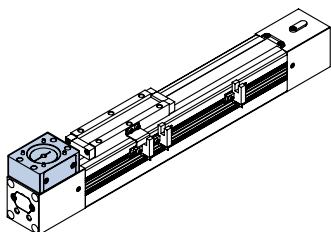


GR Guide right side

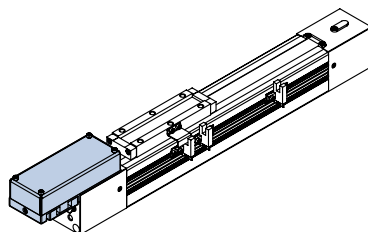


GL Guide left side

Motor position

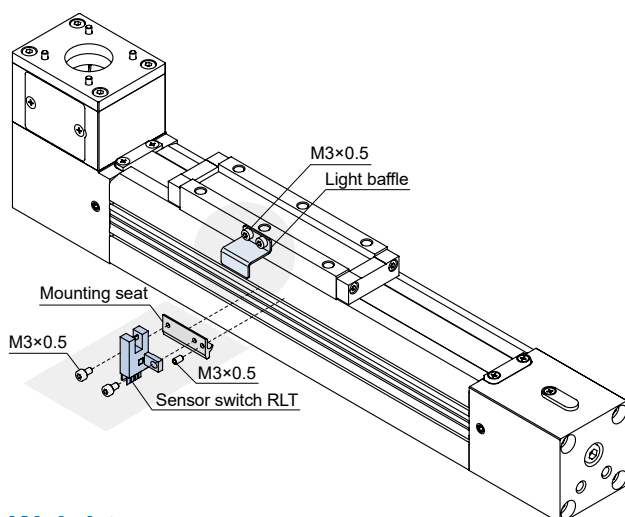


BW Top side



BM Down side

Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	Mounting seat (×1)	Bolt (×1)	Bolt (×2)

* With cable 2m.

Accessory kits

Light baffle (×1)	Bolt (×2)

Weight

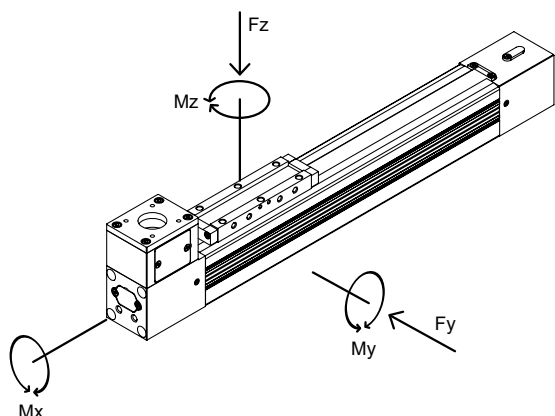
Unit: kg

Model	Basic weight METFB-32N	Stroke 100 mm METFB-32N	Basic weight (with guide) METFB-32G*	Stroke 100 mm (with guide) METFB-32G*
Size				
32	2.06	0.36	2.7	0.49

* The table lists the weight of motor mounting on top.

METFB-32 Capacity

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Forces & Moments

Model		Mx	My	Mz	Fy	Fz
		Max. allowed moment (N.m)			Max. allowed load(N)	
METFB-32	Without guide	5.5	22	22	—	500
	With guide	47.5	48	48	2800	3300

Attention: In case of undefinable situations the above max. values have to be reduced by 10~20%.

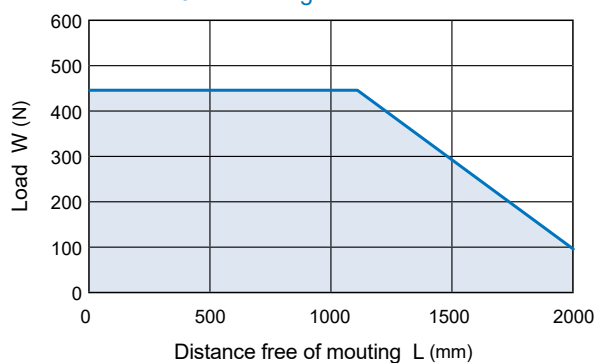
Please refer to the following formula when combined loads are applied.

$$\frac{M_{xA}}{M_x} + \frac{M_{yA}}{M_y} + \frac{M_{zA}}{M_z} + \frac{F_{yA}}{F_y} + \frac{F_{zA}}{F_z} \leq 1$$

* The A letters show the calculated value.

Positioning of cylinder mountings

METFB-32 Without guide



METFB-32 With guide

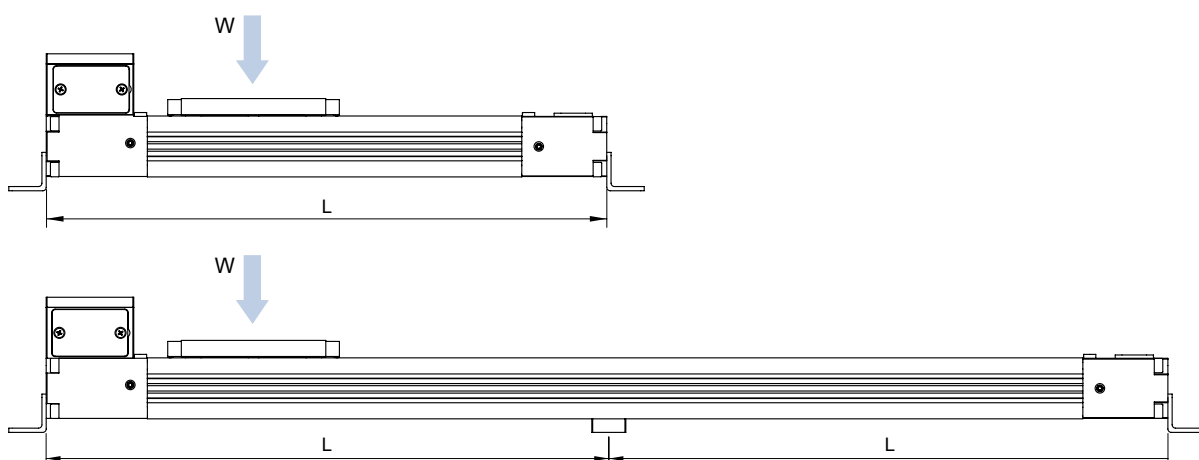
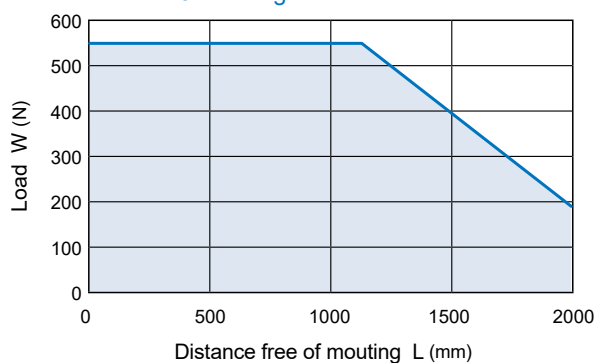


Diagram information

- Calculated deflections without support of 0.5~1 mm allow exceeding of the approved limits.
- Calculated deflections without support of > 1~1.5 mm require reduction of approved limits.

METFB-32 Dimensions

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)

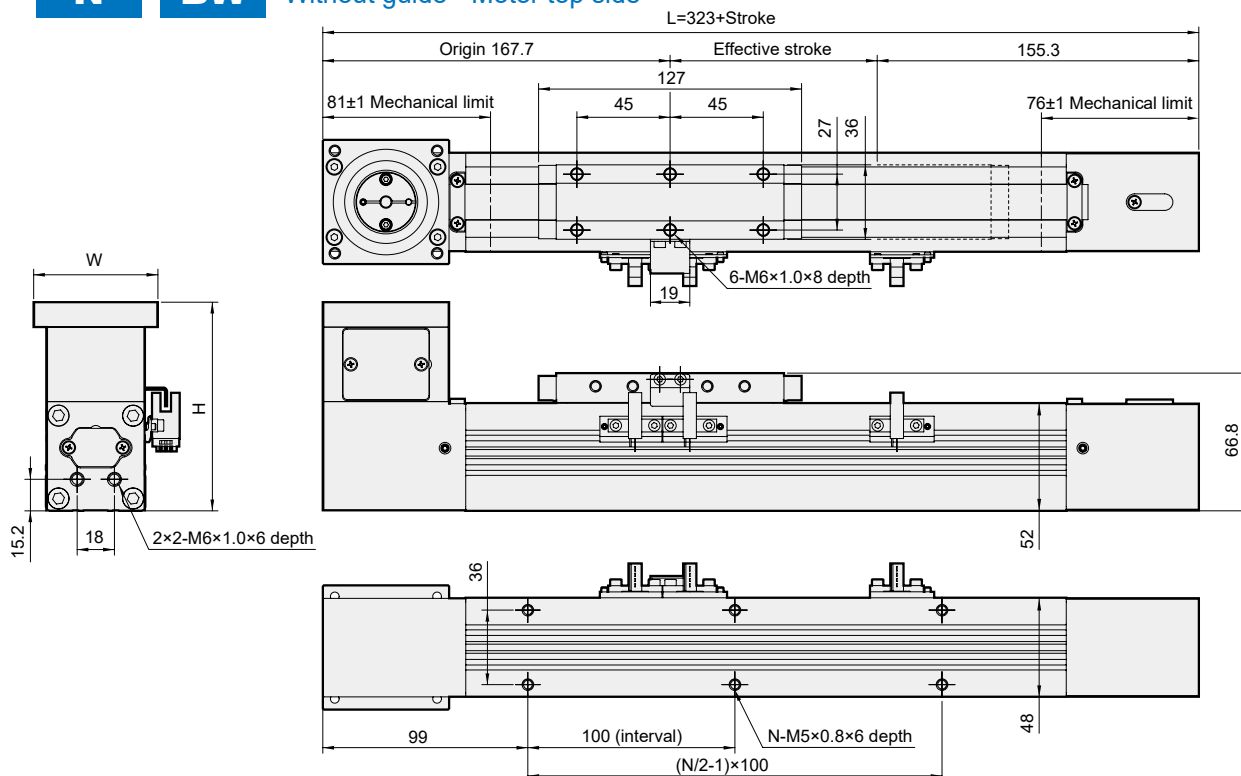


mindman

N

BW

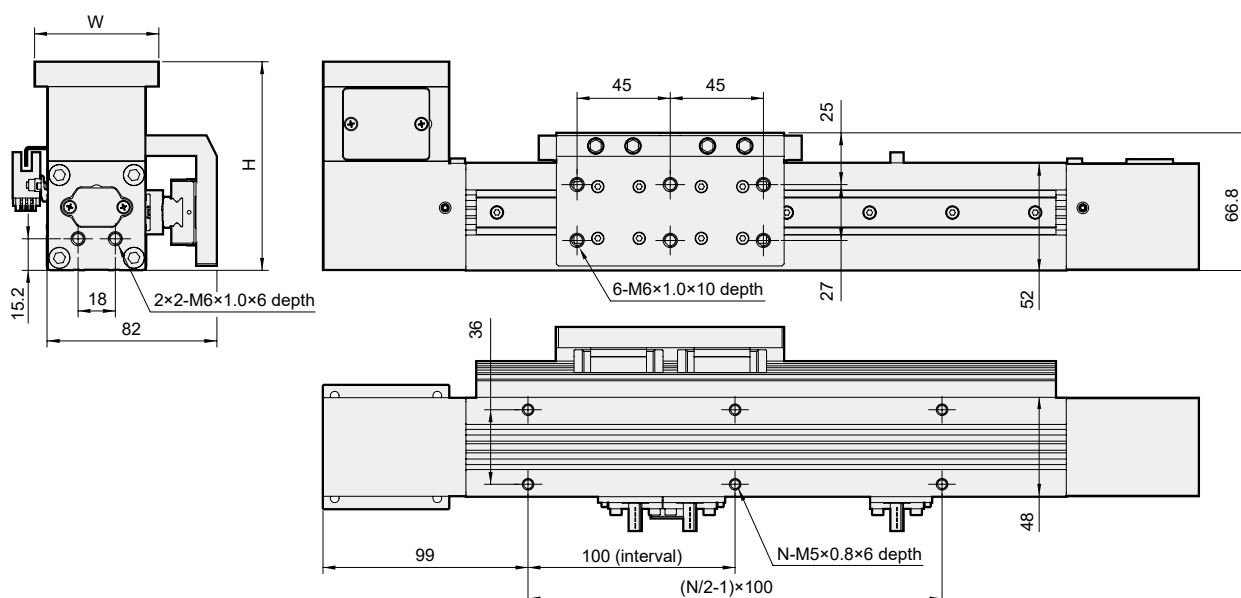
Without guide • Motor top side



GL

BW

Guide left side • Motor top side



Unit: mm

Stroke Code	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	423	523	623	723	823	923	1023	1123	1223	1323	1423	1523	1623	1723	1823	1923	2023	2123	2223	2323
N	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44

Stroke Code	Servo	Step
W	60	47.6
H	100.8	94.8

METFB-32 Dimensions

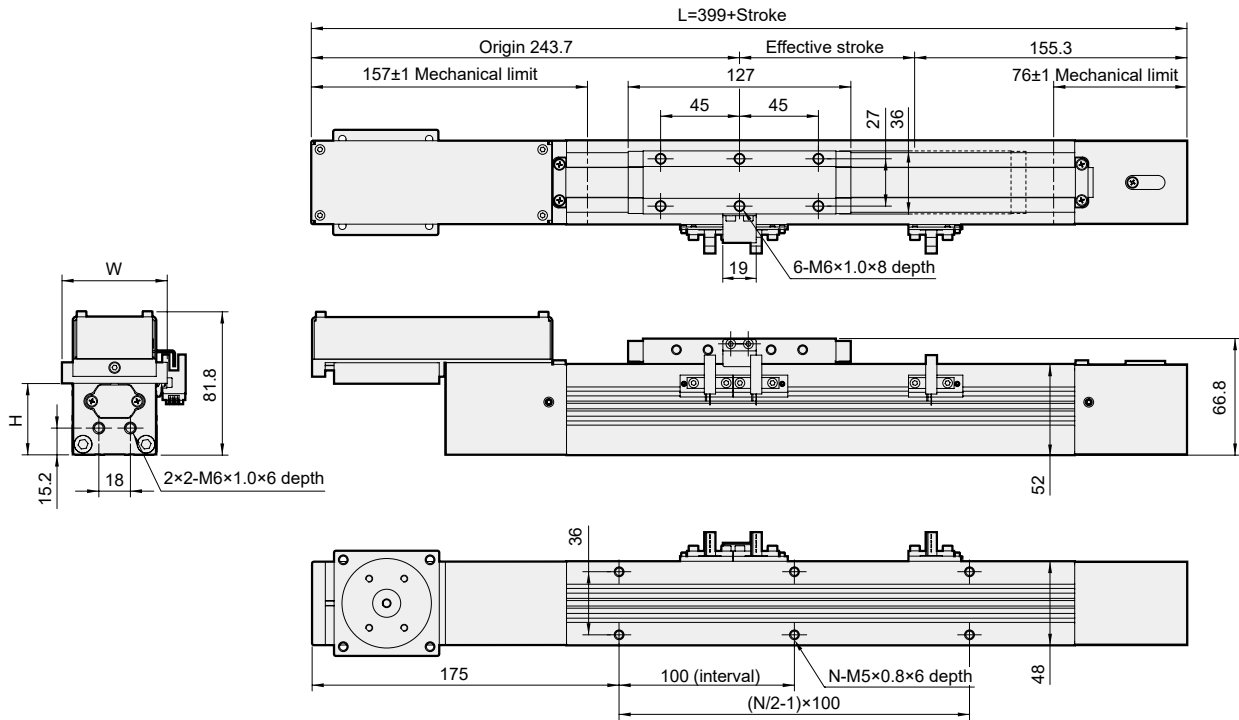
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



N

BM

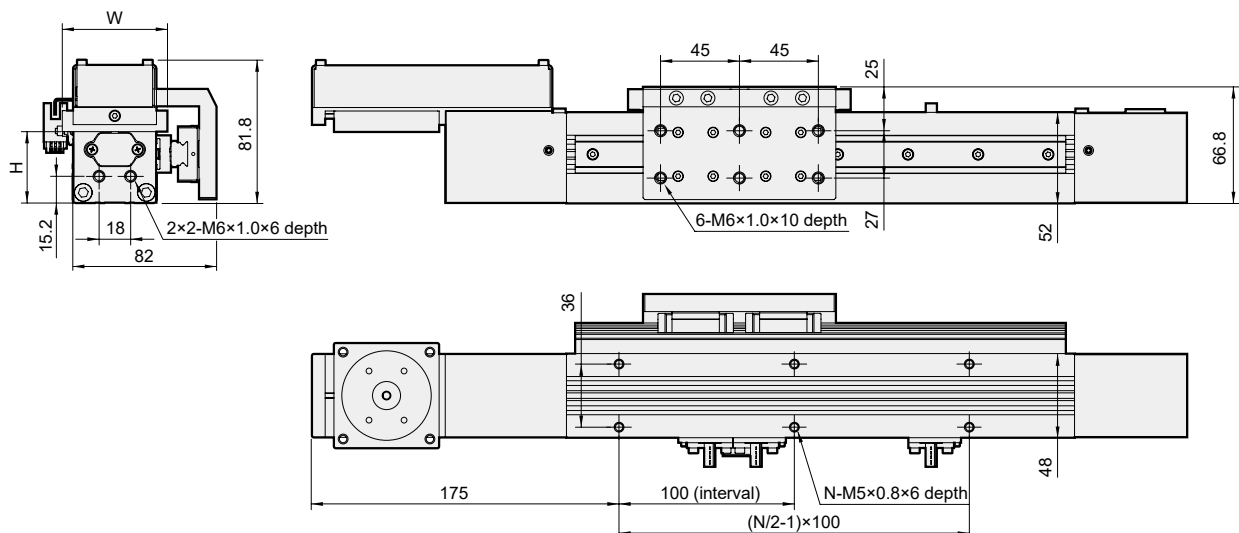
Without guide • Motor down side



GL

BM

Guide left side • Motor down side



Unit: mm

Stroke Code	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	499	599	699	799	899	999	1099	1199	1299	1399	1499	1599	1699	1799	1899	1999	2099	2199	2299	2399
N	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44

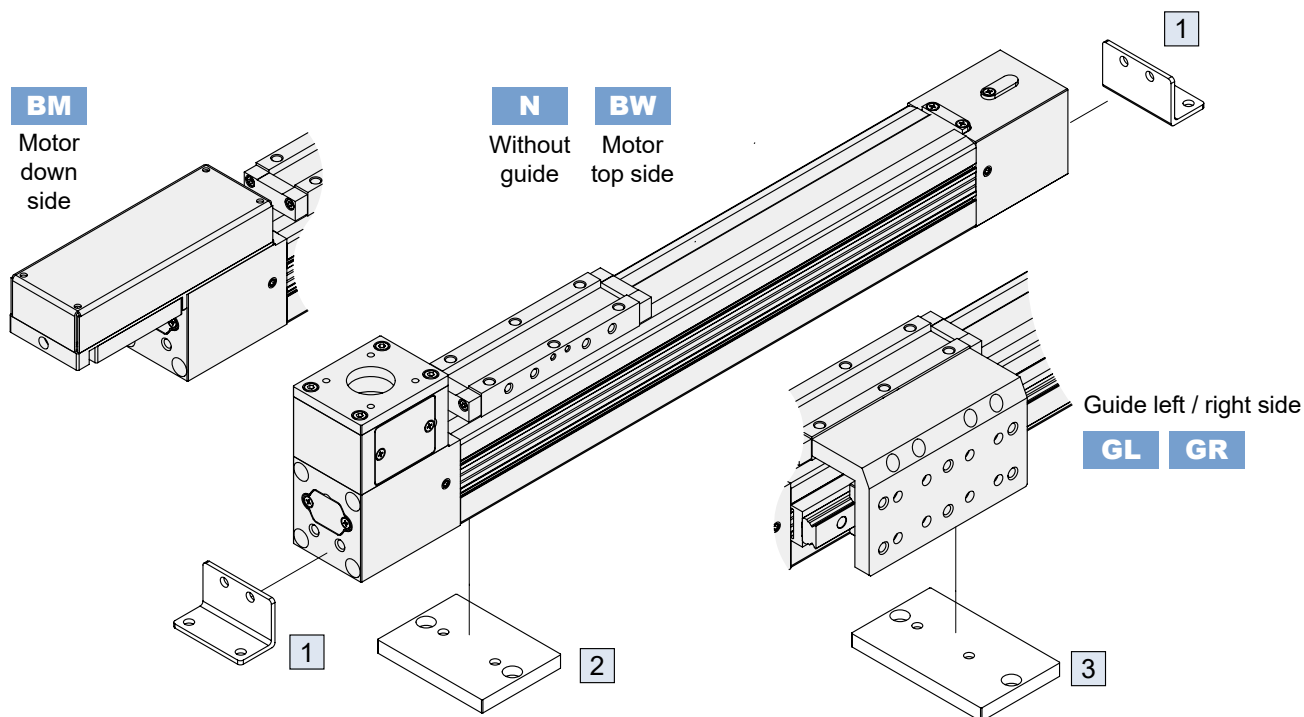
Stroke Code	Servo	Step
W	60	47.6
H	40.8	42.8

METFB-32 Mounting accessories

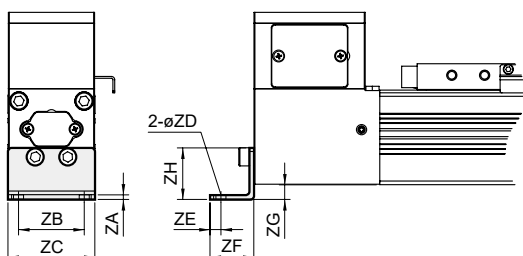
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Mindman

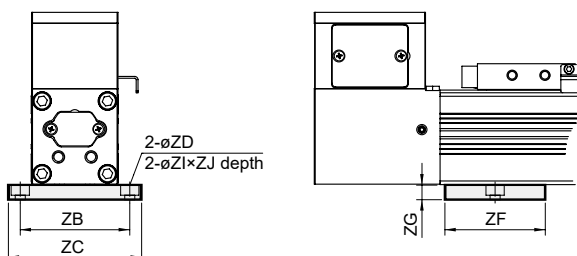


1 End cover bracket (2pcs/set)

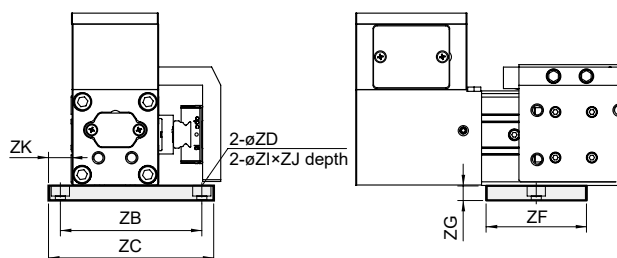


* Not applicable for (BM) motor down side.

2 Mid section support *Applicable for (N) without guide.



3 Mid section support * Applicable for (GR / GL) with guide.



Unit: mm													Order number
Item	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	Weight (g)	
1	2.5	36	47.6	5.5	6	24	8	28.3	—	—	—	46	LB-EB2-32
2	—	60	72	5.5	—	55	8	—	10	5.5	—	82	MS-EB2-32
3	—	78	90	5.5	—	55	8	—	10	5.5	12.5	103	MS-EB2-32G

METFB-40 series

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Selection table



Applications



Measuring tools



Reference data



Motor selection



Controller



Specification

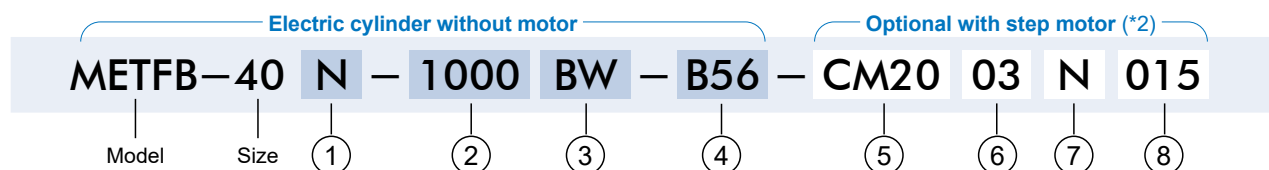
Model	METFB-40
Positioning repeatability (mm)	±0.05
Lead (mm/rev)	72
Belt pitch (mm)	3
Stroke (mm)	100~2000
No-load torque (N.m)	0.6
Slot-type photomicro sensor	RLT

Motor type	AC servo	Step
Power output / size	200W 400W	□56
Max. speed *1 (mm/s)	2400	720
Rated load *2	Horizontal (kg)	7.5 15 13
	Vertical (kg)	— —

*1. Acceleration and deceleration values are set to 0.5 second.

*2. Not available for vertical installation.

Order example



① **Guide installation**

N	Without guide
GR	Guide right side
GL	Guide left side

② **Stroke**

100~2000	mm
-----------------	----

③ **Motor position**

BW	Top side
BM	Down side

④ **Flange (For motor installation)**

Applicable motor brand *1	Dimensions
M	Mitsubishi
	Yaskawa
	Delta
P	Panasonic
	Delta
S	Mindman
B	Mindman

⑤ **Controller Motor**

CK10	SM (for S56)
CM20 *	BM (for B56)

* Sensors would be needed.

⑦ **I/O type**

N	NPN
----------	-----

⑥ **Motor + Encoder cable**

01	1 m (CM20 only)
015	1.5 m (CK10 only)
03	3 m (standard)
05	5 m

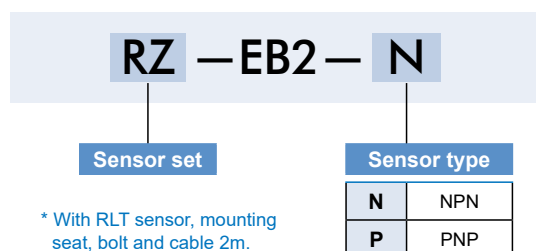
⑧ **I/O cable length**

015	1.5 m (standard)
03	3 m

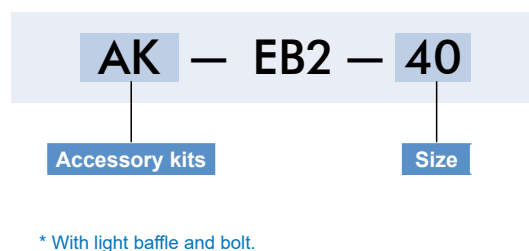
*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. For the optional transmission cable (CK10-C035) for controller management.

Slot-type photomicro sensor set



Accessory kits



METFB-40 Guide installtion & Sensor mounting

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Rotary Actuator

Clamp Cylinder

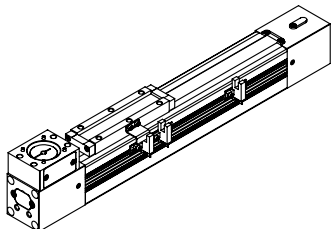
End of Arm Tooling

Electric Actuator

Auxiliary Equipment

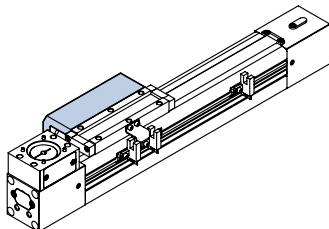
Hydraulic Cylinder

Guide installtion



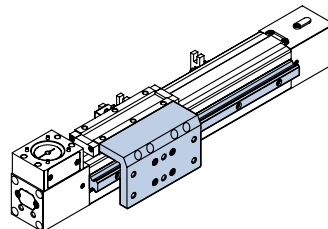
N

Without guide



GR

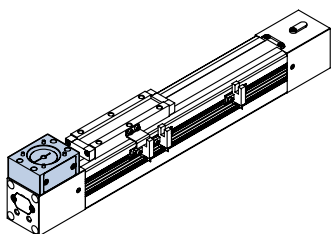
Guide right side



GL

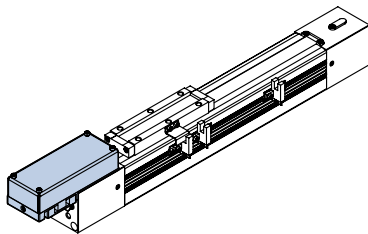
Guide left side

Motor position



BW

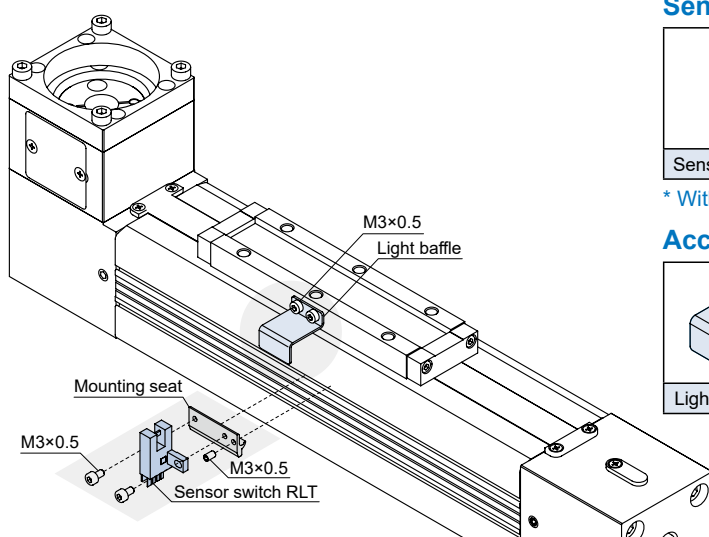
Top side



BM

Down side

Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	Mounting seat (×1)	Bolt (×1)	Bolt (×2)

* With cable 2m.

Accessory kits

Light baffle (×1)	Bolt (×2)

Weight

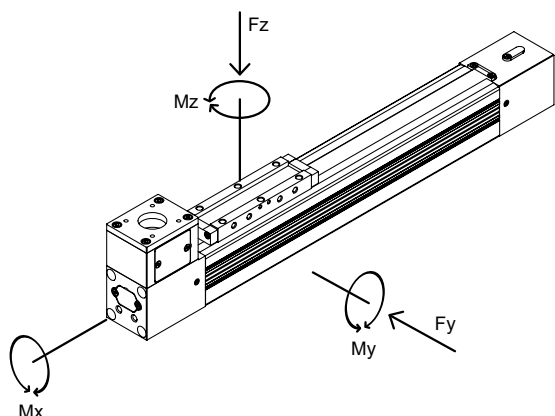
Unit: kg

Model	Basic weight METFB-40N	Stroke 100 mm METFB-40N	Basic weight (with guide) METFB-40G*	Stroke 100 mm (with guide) METFB-40G*
Size				
40	2.96	0.5	3.73	0.62

* The table lists the weight of motor mounting on top.

METFB-40 Capacity

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Forces & Moments

Model		Mx	My	Mz	Fy	Fz
		Max. allowed moment (N.m)			Max. allowed load(N)	
METFB-40	Without guide	10	30	30	—	600
	With guide	78	90	90	4000	4600

Attention: In case of undefinable situations the above max. values have to be reduced by 10~20%.

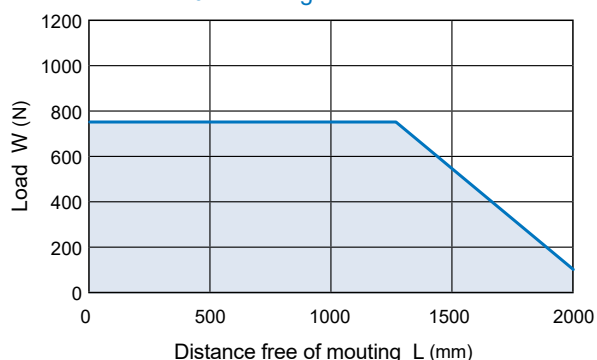
Please refer to the following formula when combined loads are applied.

$$\frac{M_{xA}}{M_x} + \frac{M_{yA}}{M_y} + \frac{M_{zA}}{M_z} + \frac{F_{yA}}{F_y} + \frac{F_{zA}}{F_z} \leq 1$$

* The A letters show the calculated value.

Positioning of cylinder mountings

METFB-40 Without guide



METFB-40 With guide

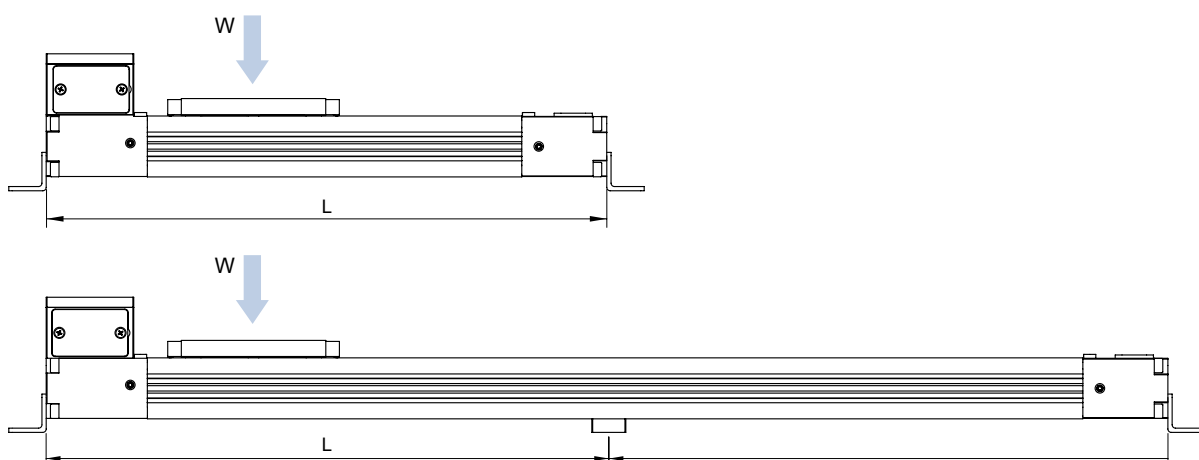
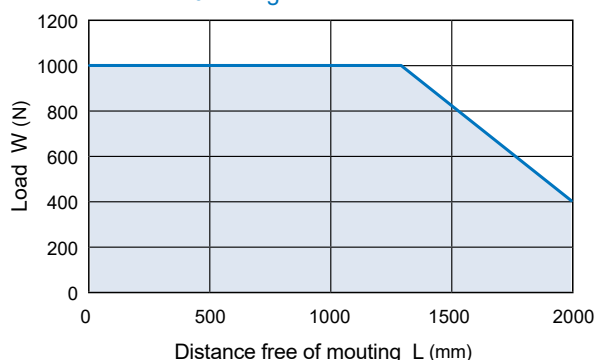


Diagram information

- Calculated deflections without support of 0.5~1 mm allow exceeding of the approved limits.
- Calculated deflections without support of > 1~1.5 mm require reduction of approved limits.

METFB-40 Dimensions

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)

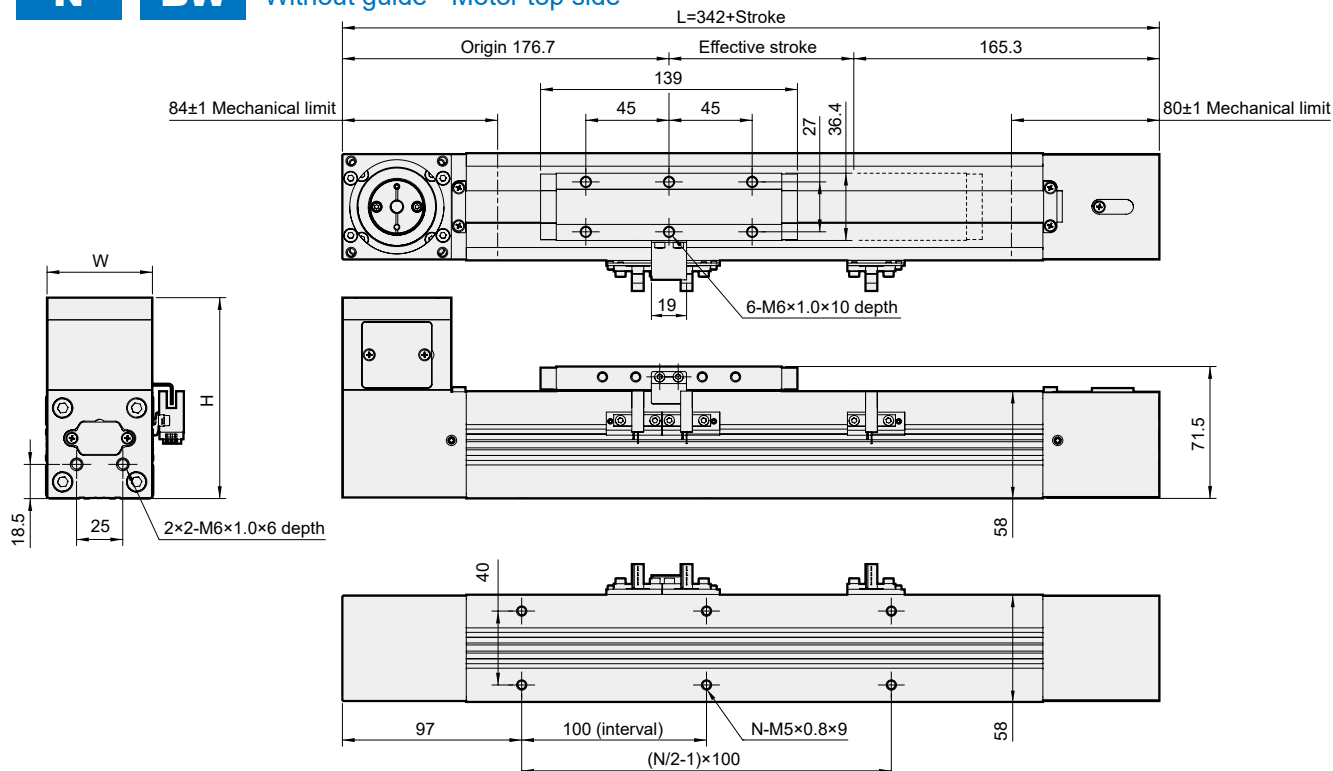


mindman

N

BW

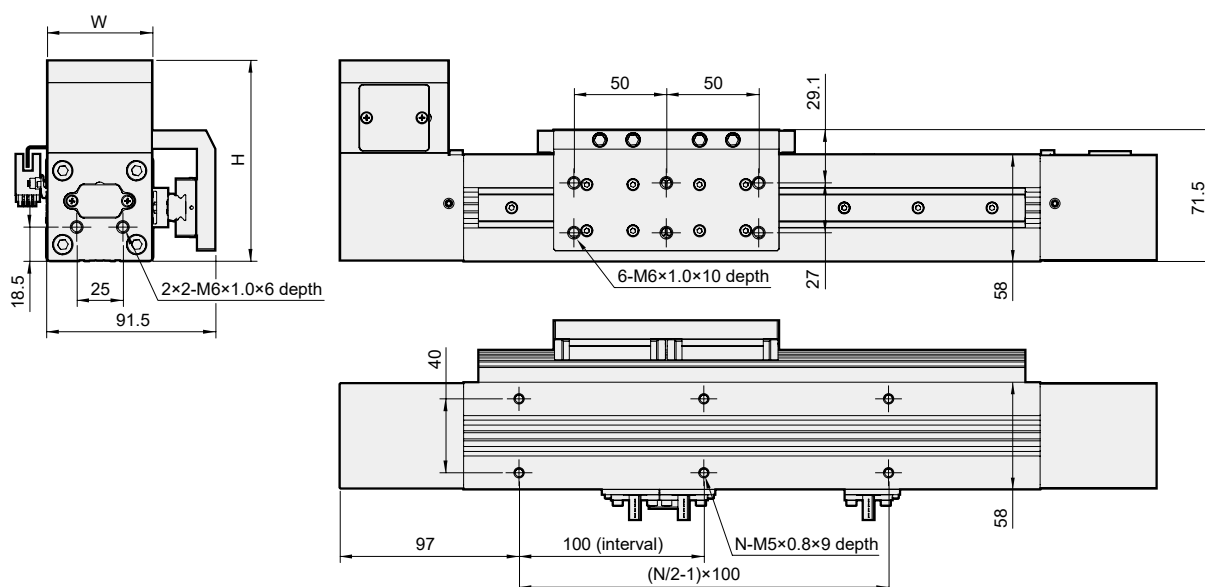
Without guide • Motor top side



GL

BW

Guide left side • Motor top side



Unit: mm

Stroke Code	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	442	542	642	742	842	942	1042	1142	1242	1342	1442	1542	1642	1742	1842	1942	2042	2142	2242	2342
N	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44

Stroke Code	Servo	Step
W	57	57
H	108.7	102.7

METFB-40 Dimensions

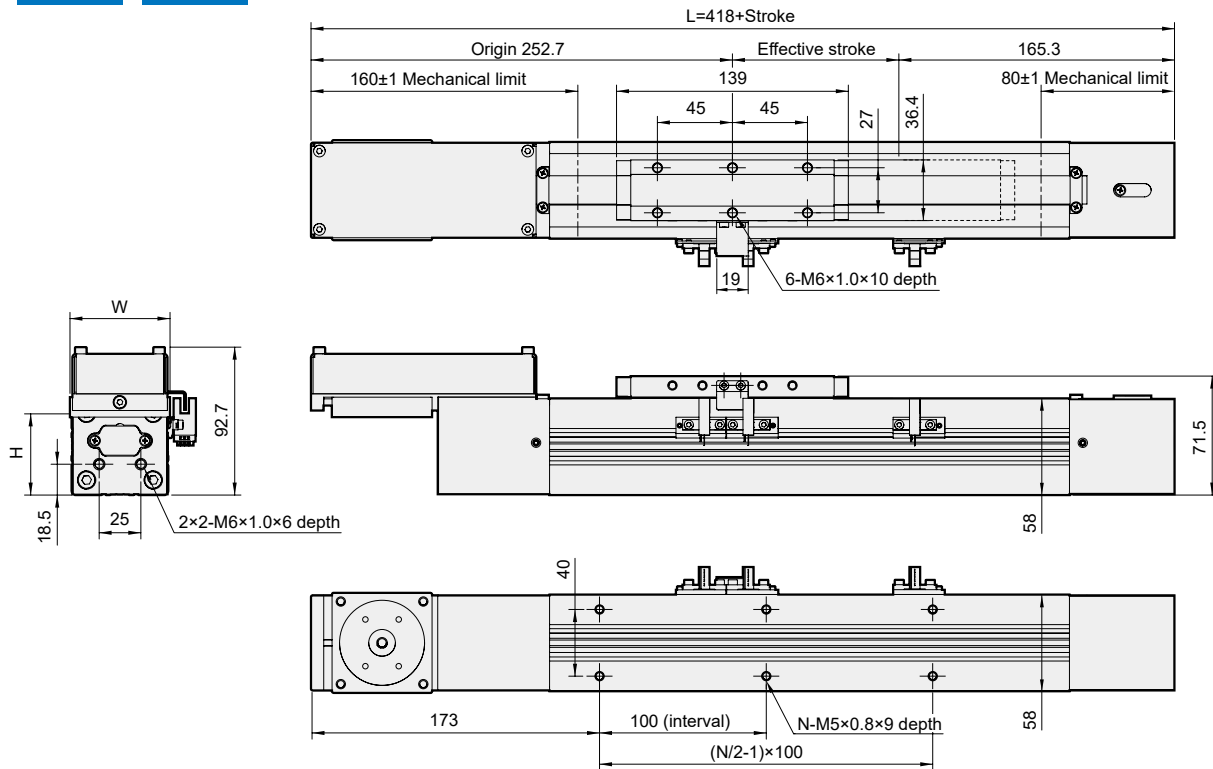
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



N

BM

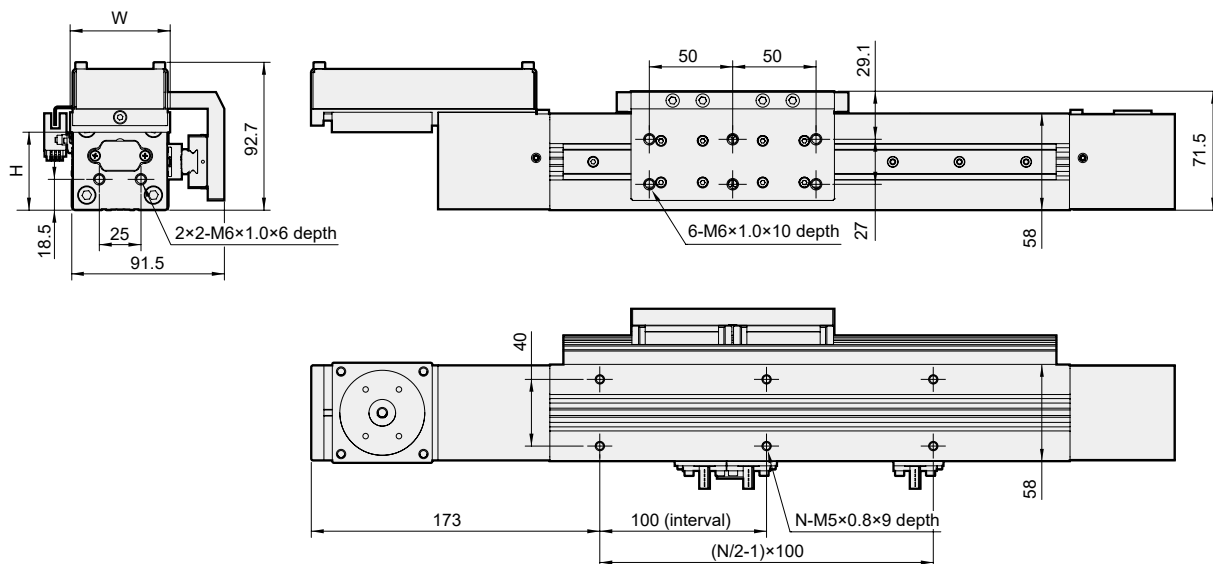
Without guide • Motor down side



GL

BM

Guide left side • Motor down side



Unit: mm

Stroke Code	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	518	618	718	818	918	1018	1118	1218	1318	1418	1518	1618	1718	1818	1918	2018	2118	2218	2318	2418
N	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44

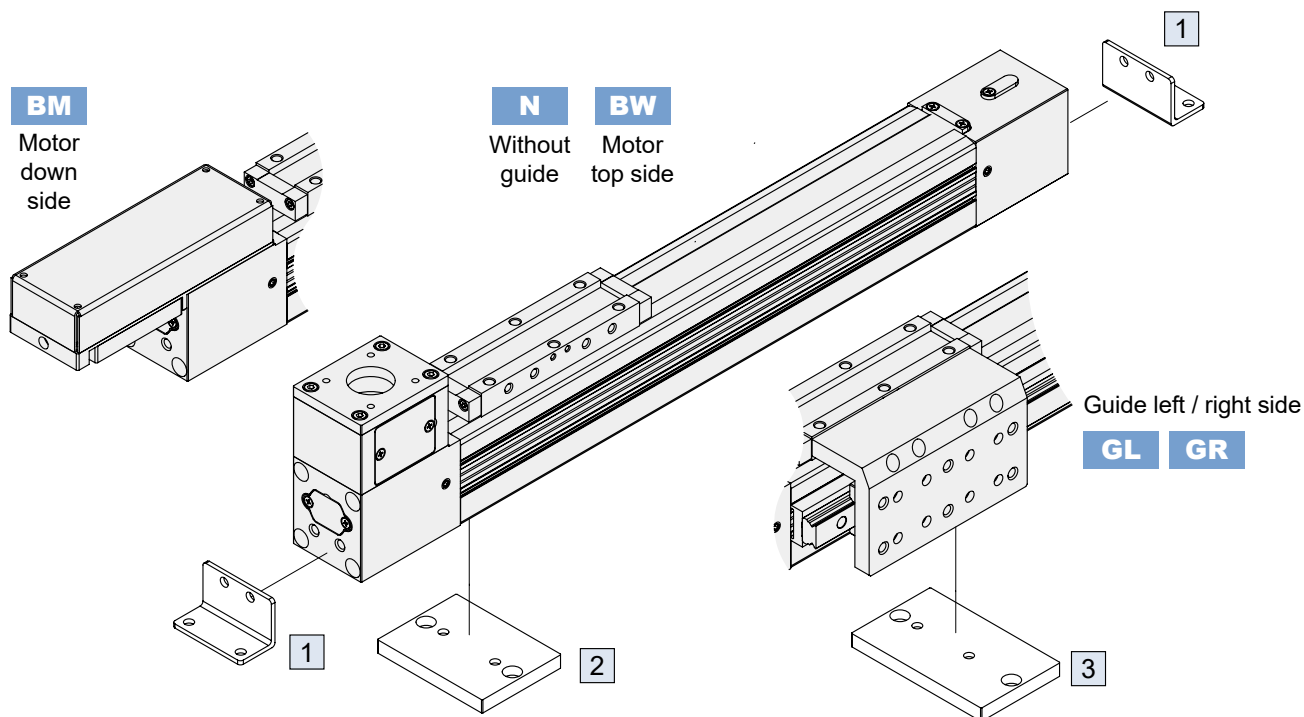
Stroke Code	Servo	Step
W	60	57
H	46.7	48.7

METFB-40 Mounting accessories

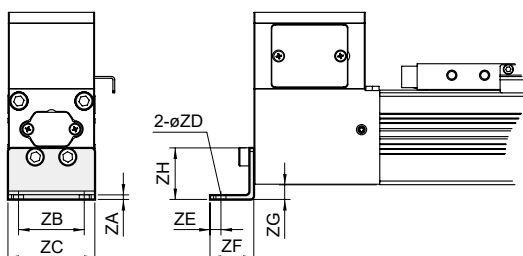
SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)



Mindman

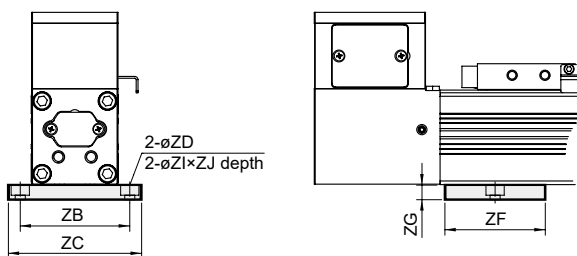


1 End cover bracket (2pcs/set)

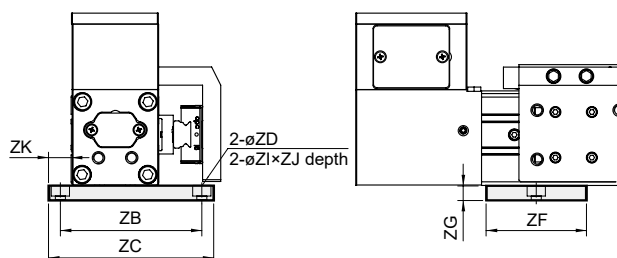


* Not applicable for (BM) motor down side.

2 Mid section support *Applicable for (N) without guide.



3 Mid section support * Applicable for (GR / GL) with guide.



Unit: mm

Item	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	Weight (g)	Order number
1	2.5	40	57	5.5	6	24	8	31.5	—	—	—	59	LB-EB2-40
2	—	70	85	5.5	—	60	8	—	10	5.5	—	105	MS-EB2-40
3	—	88	103	5.5	—	60	8	—	10	5.5	13.5	128	MS-EB2-40G

METB series

SLIDER ELECTRIC ACTUATOR (WITHOUT MOTOR)

COMING SOON

Compatible with RQT series sensor

[Update information](#)



mindman



Selection table



Applications

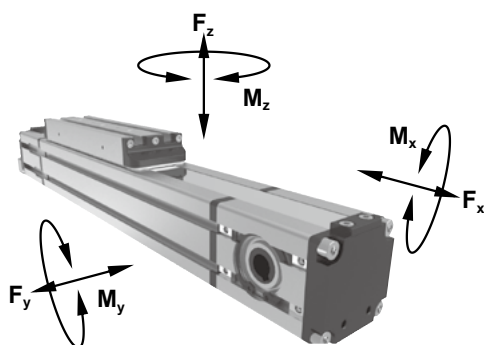


Max values for dynamic conditions.

Please refer to the following formula when combined loads are applied.

$$\frac{F_{yA}}{F_y} + \frac{F_{zA}}{F_z} + \frac{M_{xA}}{M_x} + \frac{M_{yA}}{M_y} + \frac{M_{zA}}{M_z} \leq 1$$

* The A letters show the calculated value.



Features

- Belt driven unit with railway integrated.
- Extruded aluminum anodized 6060 alloy, tempered stainless steel protection band.
- Carriage with sealed system to protect against pollution.

Specification

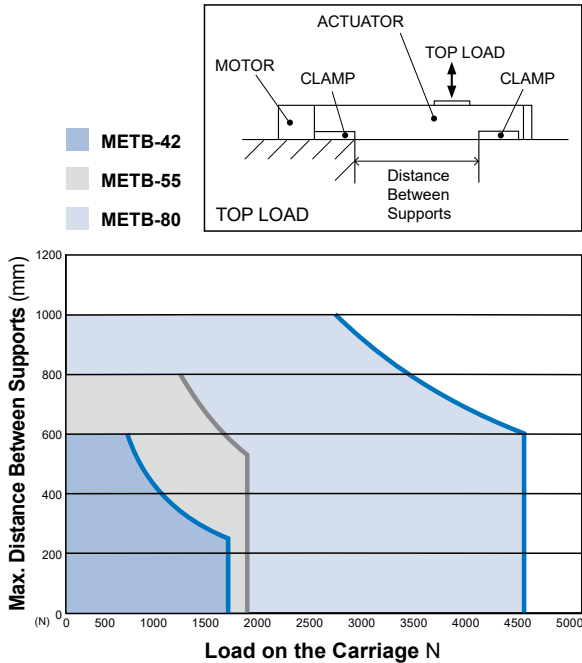
Model		METB		
Size	(mm)	42	55	80
Max. speed	(m/s)	3	3	3
Max. stroke length	(mm)	6000	6000	6000
Min. stroke length	(mm)	100	100	100
Pulley drive ratio	(mm)	90	120	160
Number of teeth of pulley	(mm)	18	24	32
Belt width (Teeth type ATL5)	(mm)	12	16	25
Max rpm	(g/min)	2000	1500	1150
Max. rated load	Fx (N)	460	820	1650
	Fy (N)	1560	1850	4500
	Fz (N)	1560	1850	4500
Moments	Mx (Nm)	20	25	80
	My (Nm)	55	120	450
	Mz (Nm)	55	120	450
Inertia moment aluminum profile	Ix (cm ⁴)	11.8	36	183
	Iy (cm ⁴)	14.2	45	226
Positioning repeatability	(mm)	±0.05	±0.05	±0.05
Max. radial load on input shaft	(N)	220	300	300
No load torque	(Nm)	>0.1	>0.5	0.9
Sensor switch		RQT , RCI		
Basic weight	(kg)	1.6	4.8	6
Added weight per 100 mm stroke	(kg)	0.25	0.37	0.9

Order example

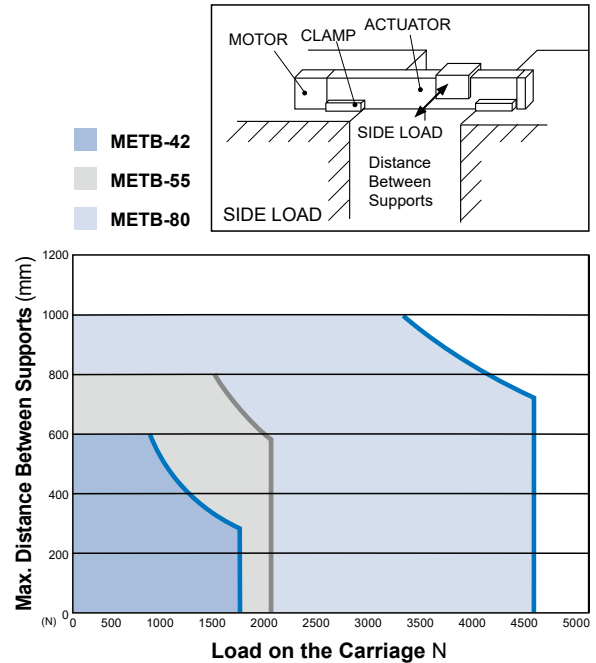
METB — 42 — 0100 — F08 L

Model	Size (mm)	Stroke	Shaft versions				Male shaft	
METB			Size	Type	ø	Part No.	L	Left shaft
Female shaft	42	42×42	42	Female shaft	8	F08	R	Right shaft
	55	55×55		Male shaft	12	M12		
	80	80×80		Double male shaft	12	D12		
Male shaft		100~6000 mm (4 codes) * Minimum stroke unit 1mm.	55	Female shaft	8	F08		
				Male shaft	16	M16		
				Double male shaft	16	D16		
Double male shaft			80	Female shaft	19	F19		
				Male shaft	19	M19		
				Double male shaft	19	D19		

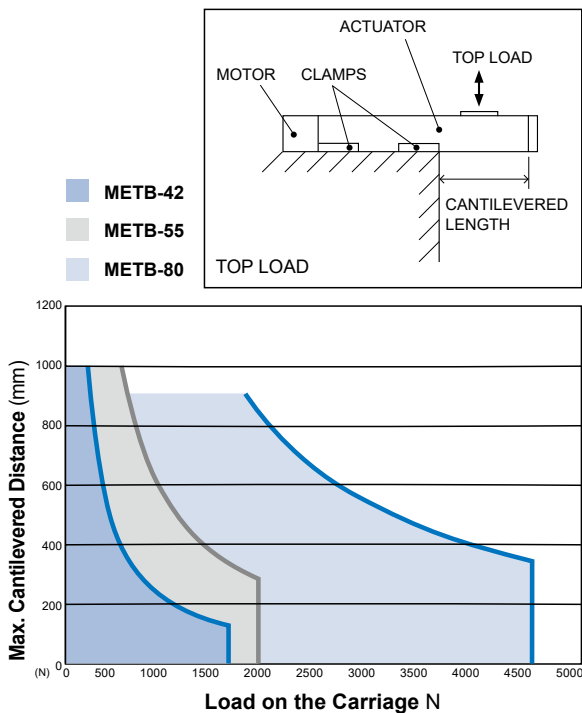
End supported top load



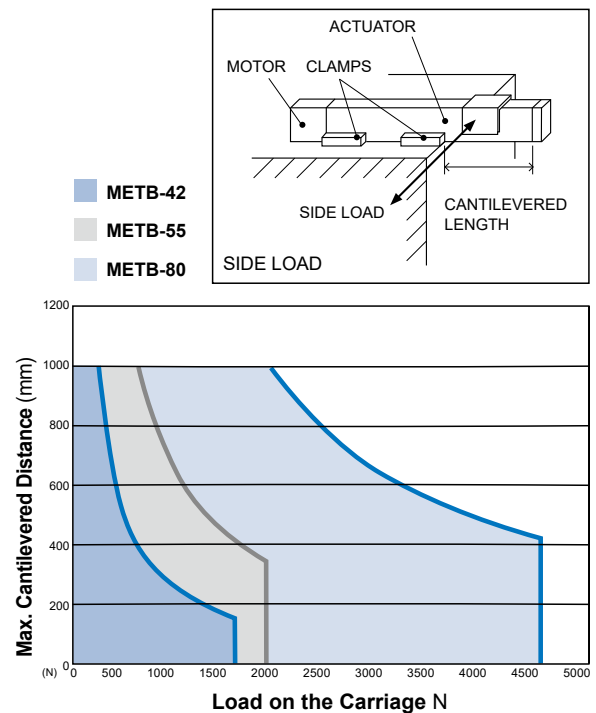
End supported side load



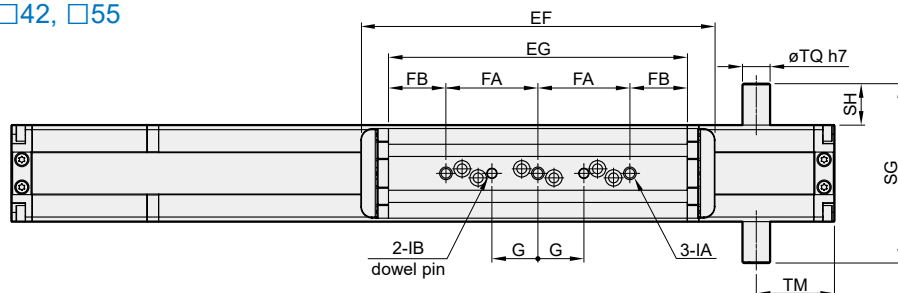
Cantilevered top load



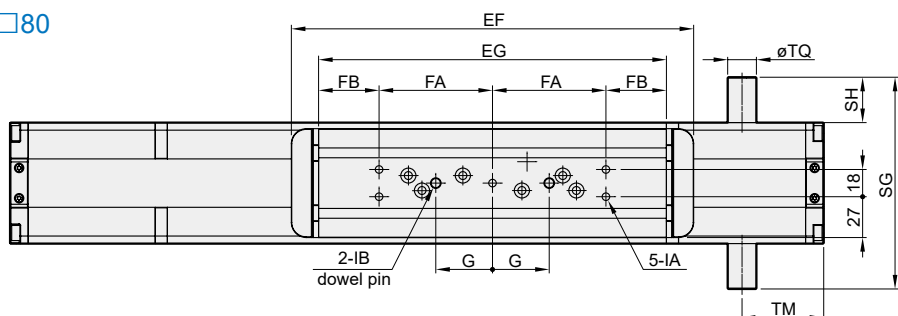
Cantilevered side load



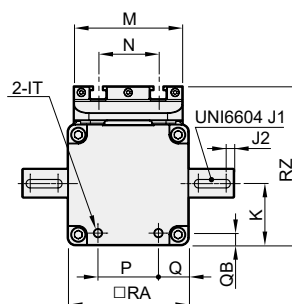
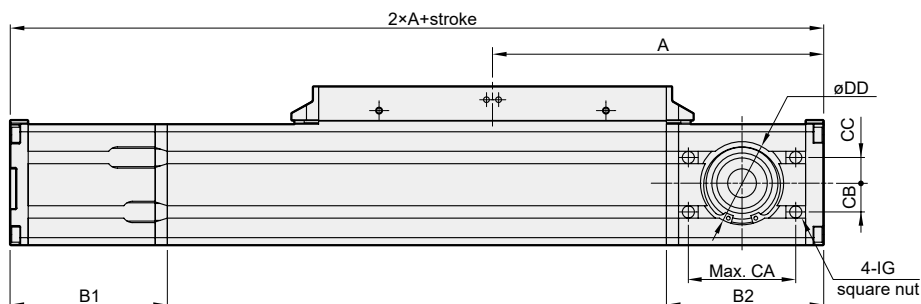
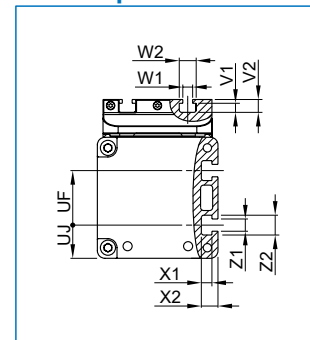
□42, □55



□80

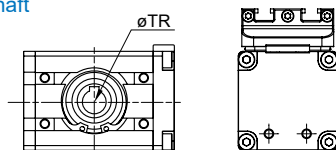


Groove position

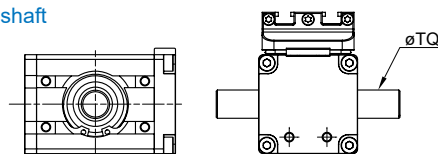


Shaft versions

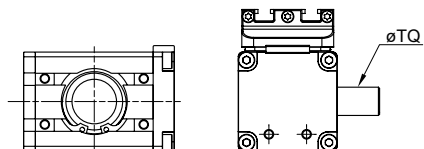
Female shaft



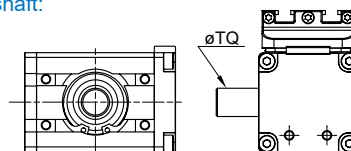
Double male shaft



Single male shaft:
side right



Single male shaft:
side left

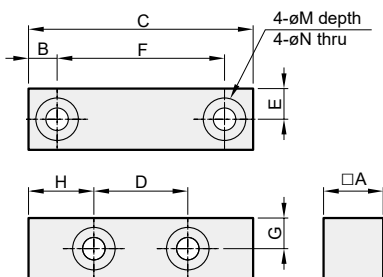


Code Tube I.D.	A	B1	B2	CA	CB	CC	DD	EF	EG	FA	FB	G	IA	IB	IG	IT
42	129.5	64	64	42	10	9.5	ø30×H7×1.7 dp	154	130	40	25	20	M5×0.8×5 dp	ø4×H7×5 dp	M5×0.8 DIN 562	M4×6 dp
55	166	88	88.5	55	8.5	13.5	ø32×H7×1.5 dp	190	150	55	20	30	M5×0.8×7.5 dp	ø5×H7×5 dp	M5×0.8 DIN 562	M5×6 dp
80	219	104	104	71	19.5	16.5	ø55×H7×2.75 dp	266	230	75	40	37.5	M6×1.0×10 dp	ø6×H7×10 dp	M8×1.25 DIN 562	M6×4 dp

Code Tube I.D.	J1	J2	K	M	N	P	Q	QB	RA	RZ	SG	SH	TM	TQ	TR	UF	UJ	V1	V2	W1	W2	X1	X2	Z1	Z2
42	4×4×18	3.2	21	39	20	16	13	7	42	59.5	78	18	34	12	8	19.5	11	3.2	4.9	5.3	8	3.2	4.9	5.3	8.6
55	5×5×20	3.5	25	50	28	23	16	8	55	76.5	93	19	49	16	8	22	16.5	4.2	6.2	5.2	8.4	4.3	6.3	5.3	8.6
80	6×6×25	5.5	41.5	72	40	40	20	8	80	105.25	140	30	54	19	19	36	22	6	8.5	6.5	11	7	11	8.2	13.2

End cap mounting

(2 pcs/set)

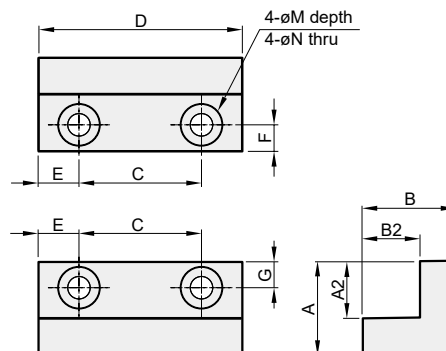


Code Size	A	B	C	D	E	F	G	H
42	14	5	42	16	7	32	7	13
55	15	7	55	23	7.5	41	8	16
80	16	8	80	40	8	64	8	20

Code Size	M	N	Weight (g)	Order number
42	8×4.4 depth	4.5	65	LB-EB1-42
55	10×5 depth	5.5	100	LB-EB1-55
80	11×6 depth	6.6	160	LB-EB1-80

Mid section mounting

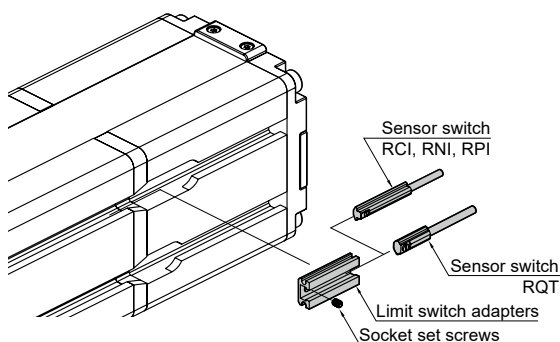
(2 pcs/set)



Code Size	A	A2	B	B2	C	D	E	F	G
42	17	12	17	12	25	40	7.5	6	6
55	23	14	23	14	30	50	10	6.5	6.5
80	32	19	34	21	40	60	10	10	10

Code Size	M	N	Weight (g)	Order number
42	10×3.5 depth	5.5	45	MS-EB1-42
55	10×5.5 depth	5.5	130	MS-EB1-55
80	15×8.6 depth	9	310	MS-EB1-80

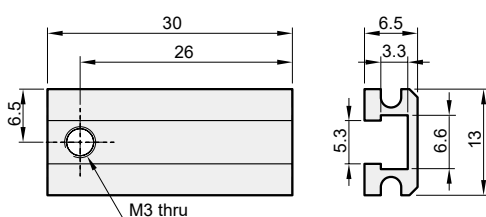
Installation of sensor switch



Limit switch adapters

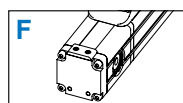
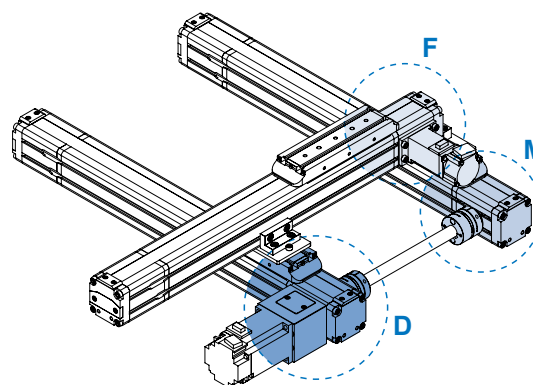
AK-EB1 (Only for size 80)

Weight: 15 g

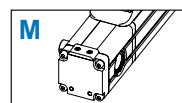


Applications

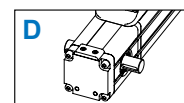
CNC machines: For precise cutting, drilling, or milling of materials.
3D printers: To move the print head accurately across the print bed.
Pick & place machines: Common in electronics manufacturing for placing components onto PCBs (Printed circuit boards).
Laser cutters & engravers: To guide the laser head with precision.



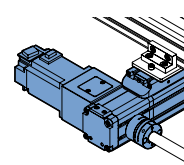
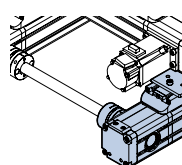
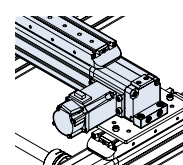
Female shaft



Male shaft



Double male shaft



METG-4 series

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection

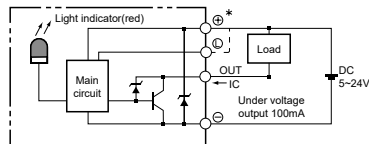


Caution

(Read before installing)



Sensor layout



Specification

Model		METG-4		
Positioning repeatability	(mm)	±0.005		
Ball screw lead	(mm)	2	6	12
Max. speed (*1)	(mm/s)	100	300	600
AC servo motor	(W)	50, 100		
Rated load (*2)	Horizontal (kg)	25	20	12
	Vertical (kg)	8 (8)	5 (8)	2 (3.5)
Max. thrust	(N)	424	414	71
Stroke (*3)	(mm)	50~800 / 50 pitch		
Ball screw	(mm)	C7ø8		
Coupling	(mm)	7×8		
Slot-type photomicro sensor		EE-SX674 (NPN)		

*1. Acceleration and deceleration values are set to 0.2 second.

*2. () Value for 100W motor.

*3. Reduce the speed when the stroke exceeds 550 mm due to resonance.

Order example

METG – 4 – L02 – 100 – BC – M05 – C4

Model

Size

Stroke

50~800 mm

50 mm pitch

Ball screw lead

L02 2 mm

L06 6 mm

L12 12 mm

Motor position

BC Direct connection

BM Lower side

BR Right side

BL Left side

Flange (For motor installation)

Applicable motor brand (*1)

M Mitsubishi

M Yaskawa

Delta

P Panasonic

Power output

05 50W

10 100W

servo

Home sensor

Out side

C Motor side

D Opposite motor side

No sensor

E None

(*2)

Limit sensor

Out side

3 1 Pc

4 2 Pcs

No sensor

5 None

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. When the stroke is 50mm, the sensor installation has the following restrictions.

1. Home sensor and limit sensor has to be installed on the different side of body.
2. Install sensor trigger on both side.

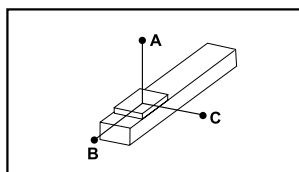
METG-4 Performance charts

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



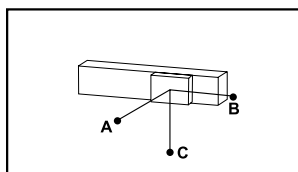
Mindman

Allowable overhang



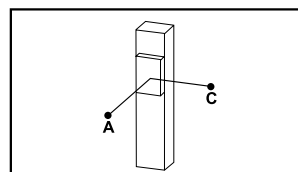
Unit: mm

Horizontal installation		A	B	C
Lead 2	12kg	1000	55	80
	18kg	750	35	50
	25kg	500	23	32
Lead 6	10kg	550	53	70
	15kg	350	32	45
	20kg	250	22	31
Lead 12	8kg	305	59	75
	10kg	240	45	57
	12kg	195	37	47



Unit: mm

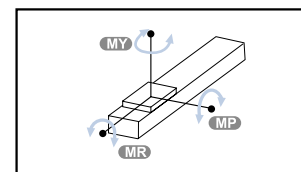
Wall installation		A	B	C
Lead 2	12kg	80	55	1000
	18kg	50	35	750
	25kg	32	23	500
Lead 6	10kg	72	52	550
	15kg	45	32	345
	20kg	31	22	250
Lead 12	8kg	75	59	300
	10kg	45	32	240
	12kg	31	22	250



Unit: mm

Vertical installation		A	C
Lead 2	4kg	200 (195)	200 (195)
	8kg	100	100
Lead 6	3kg	200 (150)	200 (150)
	5kg	120 (75)	120 (75)
Lead 12	1.5kg	350 (260)	350 (260)
	2kg	260 (150)	260 (150)

Static loading moment



Unit: N.m

MY	79
MP	79
MR	116

- The torque value in the chart indicate the center of gravity.
- Operation life is 10000km when the product is using under the specified conditions.
- Data information is not for ceiling-mount inverse use.
Contact us for the details if you want to apply ceiling-mount inverse usage.
- () The value for power output 100W.

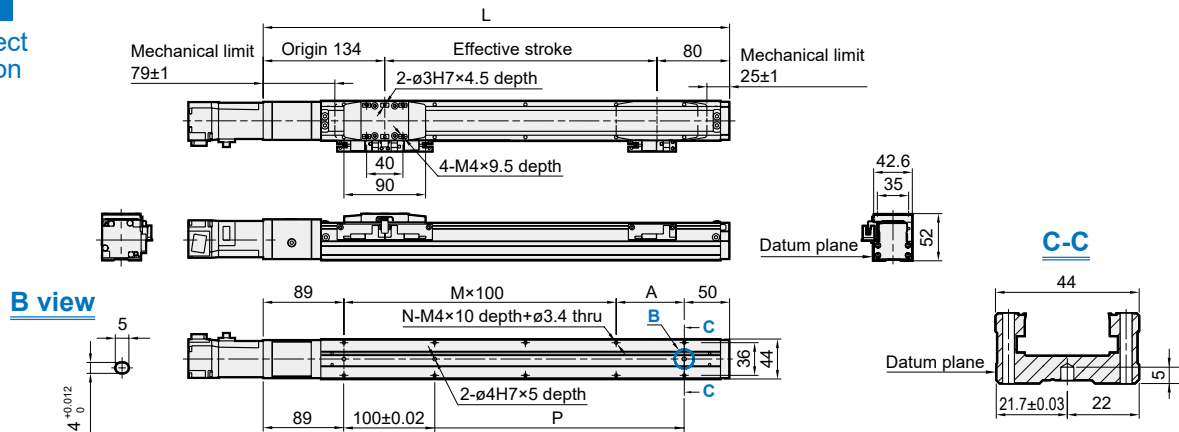
METG-4 Dimensions

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



BC

Motor direct connection

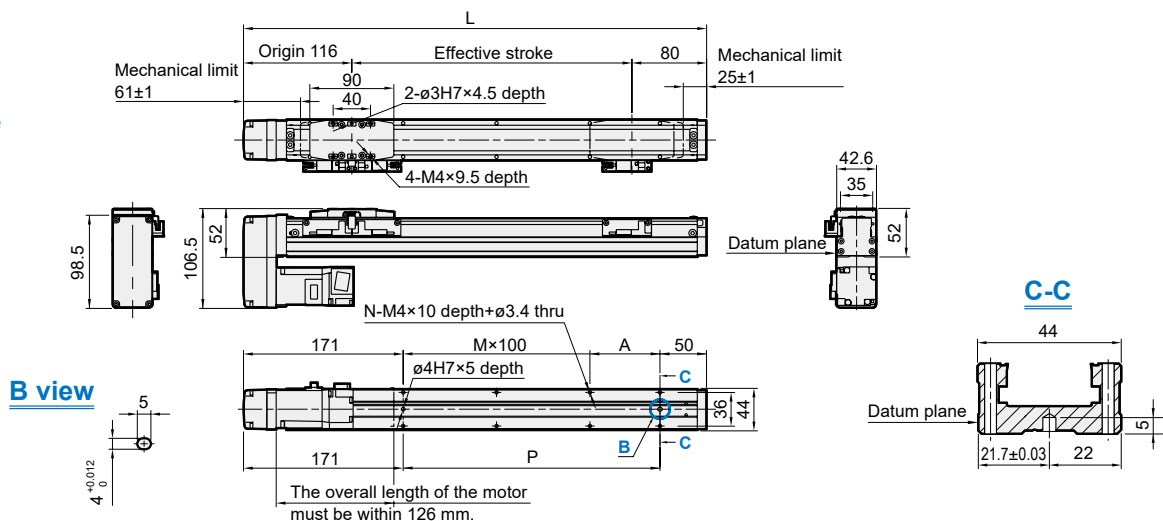


Unit: mm

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	1.36	1.61	1.86	2.11	2.35	2.6	2.85	3.1	3.34	3.59	3.84	4.09	4.34	4.59	4.84	5.09

BM

Motor on lower side



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	15	14	16	16	18	18
P	25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
KG	1.66	1.91	2.16	2.4	2.65	2.9	3.14	3.39	3.64	3.89	4.14	4.39	4.64	4.89	5.14	5.39

* When motor with brake assembled on down side, or the total length over than spec limit, it may not use standard pinhole. Please contact us if you need more information and requirement.

METG-4 Dimensions

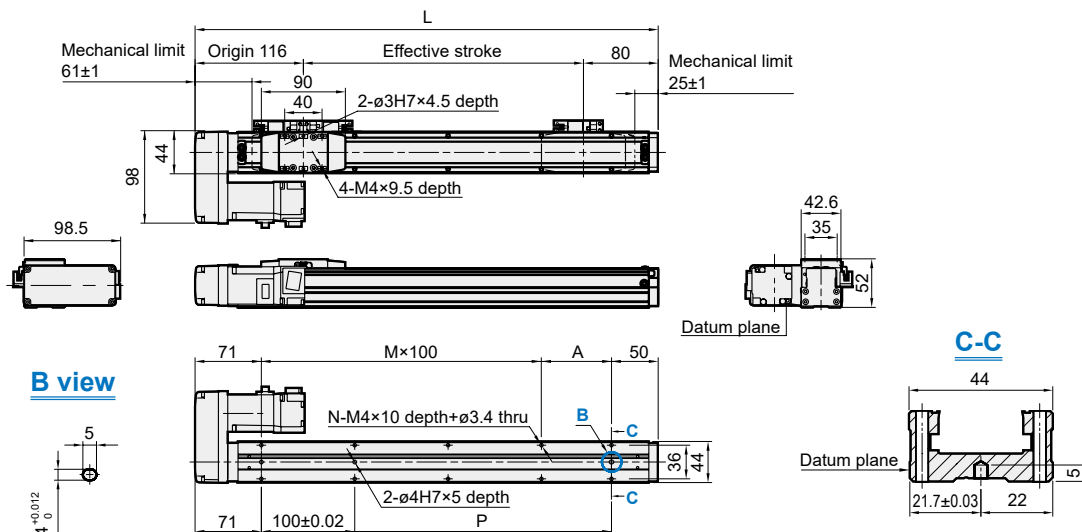
SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



mindman

BL

Motor on left side

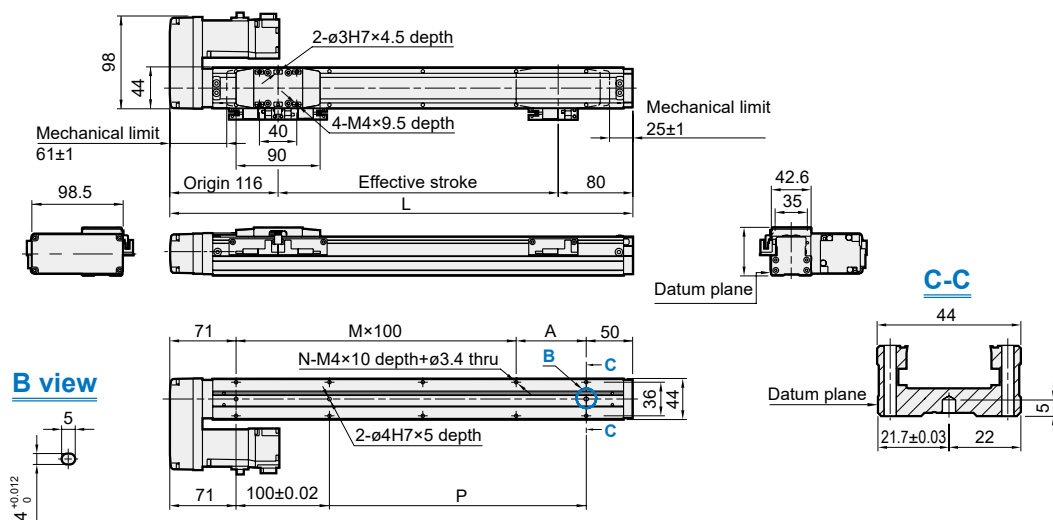


Unit: mm

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	1.66	1.91	2.16	2.4	2.65	2.9	3.14	3.39	3.64	3.89	4.14	4.39	4.64	4.89	5.14	5.39

BR

Motor on right side



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	1.66	1.91	2.16	2.4	2.65	2.9	3.14	3.39	3.64	3.89	4.14	4.39	4.64	4.89	5.14	5.39

METG-5 series

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



Mindman



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection

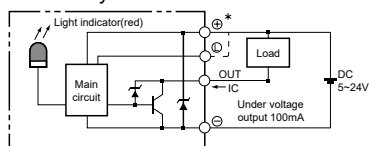


Caution

(Read before installing)



Sensor layout



Specification

Model		METG-5			
Positioning repeatability	(mm)	±0.005			
Ball screw lead	(mm)	2	5	10	20
Max. speed (*1)	(mm/s)	100	250	500	1000
AC servo motor	(W)	100W			
Rated load	Horizontal (kg)	30	30	15	10
	Vertical (kg)	10	10	5	2.5
Max. thrust	(N)	854	341	170	85
Stroke (*2)	(mm)	50~800 / 50 pitch			
Ball screw	(mm)	C7Ø12			
Coupling	(mm)	7×8			
Slot-type photomicro sensor		EE-SX674 (NPN)			

*1. Acceleration and deceleration values are set to 0.2 second.

*2. Reduce the speed when the stroke exceeds 600 mm due to resonance.

Order example

METG – 5 – L02 – 100 – BC – M10 – C4

Model

Size

Stroke

50~800 mm
50 mm pitch

Ball screw lead	
L02	2 mm
L05	5 mm
L10	10 mm
L20	20 mm

Motor position	
BC	Direct connection
BM	Lower side
BR	Right side
BL	Left side

Flange (For motor installation)			
Applicable motor brand (*1)		Power output	
M	Mitsubishi	10	100W servo
	Yaskawa		
	Delta		
P	Panasonic		

Home sensor	
Out side	
C	Motor side
D	Opposite motor side
No sensor	
E	None

Limit sensor	
Out side	
3	1 Pc
4	2 Pcs
No sensor	
5	None

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. When the stroke is 50mm, the sensor installation has the following restrictions.

1. Home sensor and limit sensor has to be installed on the different side of body.
2. Install sensor trigger on both side.

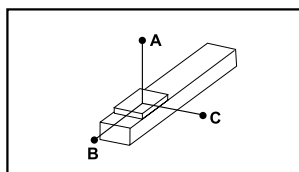
METG-5 Performance charts

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



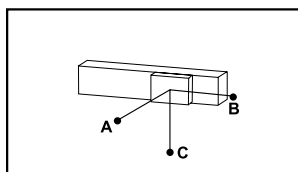
Mindman

Allowable overhang



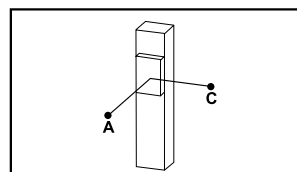
Unit: mm

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



Unit: mm

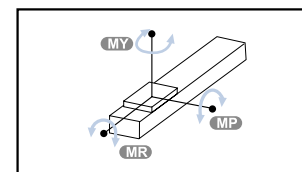
Wall installation		A	B	C
Lead 2	10kg	135	100	900
	20kg	60	45	700
	30kg	37	27	550
Lead 5	10kg	100	75	650
	20kg	45	32	420
	30kg	25	19	260
Lead 10	5kg	180	145	600
	10kg	85	68	370
	15kg	52	42	250
Lead 20	5kg	130	120	320
	8kg	75	70	220
	10kg	60	55	170



Unit: mm

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

Static loading moment



Unit: N.m

MY	103
MP	103
MR	144

- The torque value in the chart indicate the center of gravity.
- Operation life is 10000km when the product is using under the specified conditions.
- Data information is not for ceiling-mount inverse use.
Contact us for the details if you want to apply ceiling-mount inverse usage.

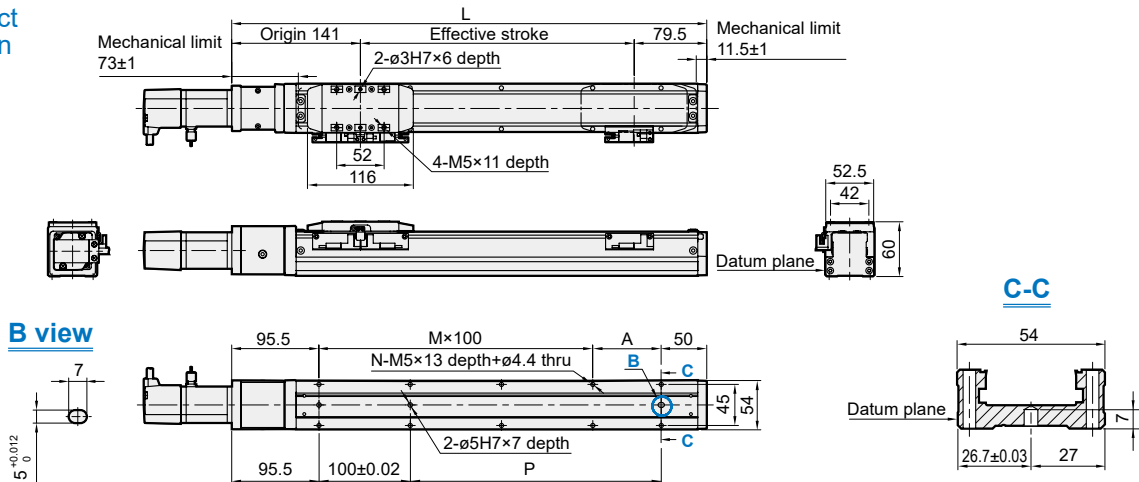
METG-5 Dimensions

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



BC

Motor direct connection

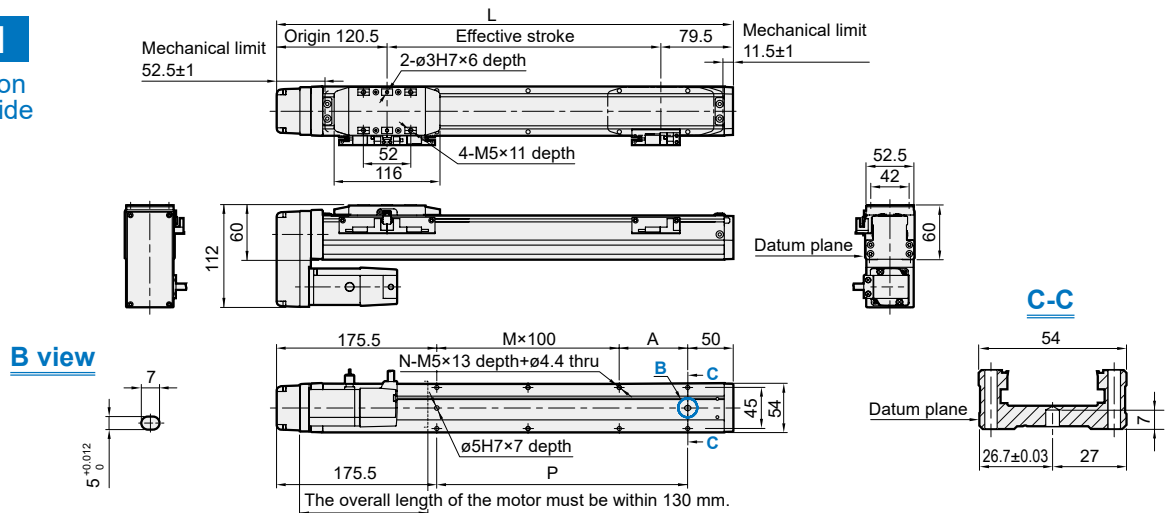


Unit: mm

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	2.23	2.42	2.62	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 on lower side



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	2.4	2.59	2.79	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 down side, or the total length over than spec limit, it may not use standard pinhole. Please contact us if you need more information and requirement.

METG-5 Dimensions

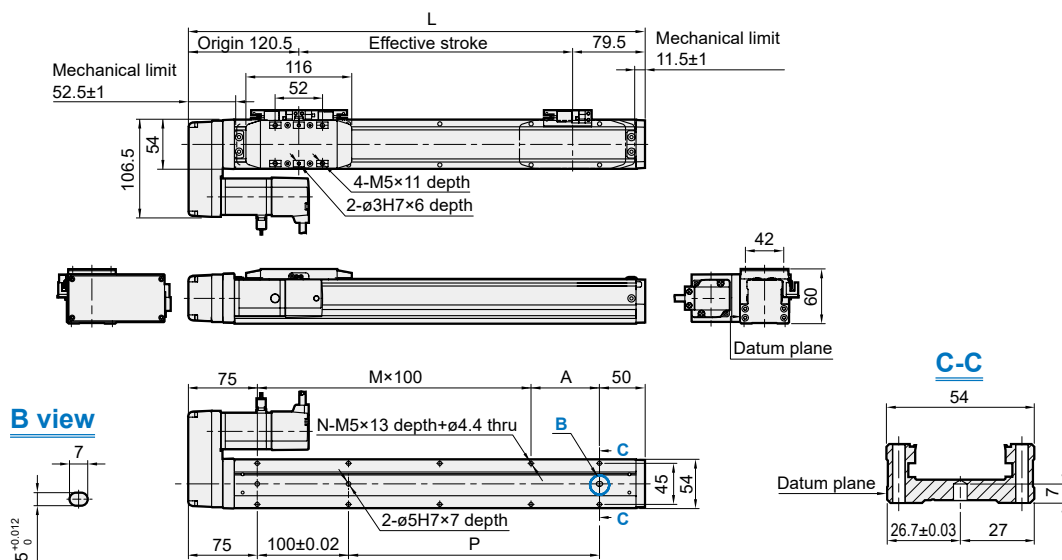
SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



mindman

BL

Motor on
left side

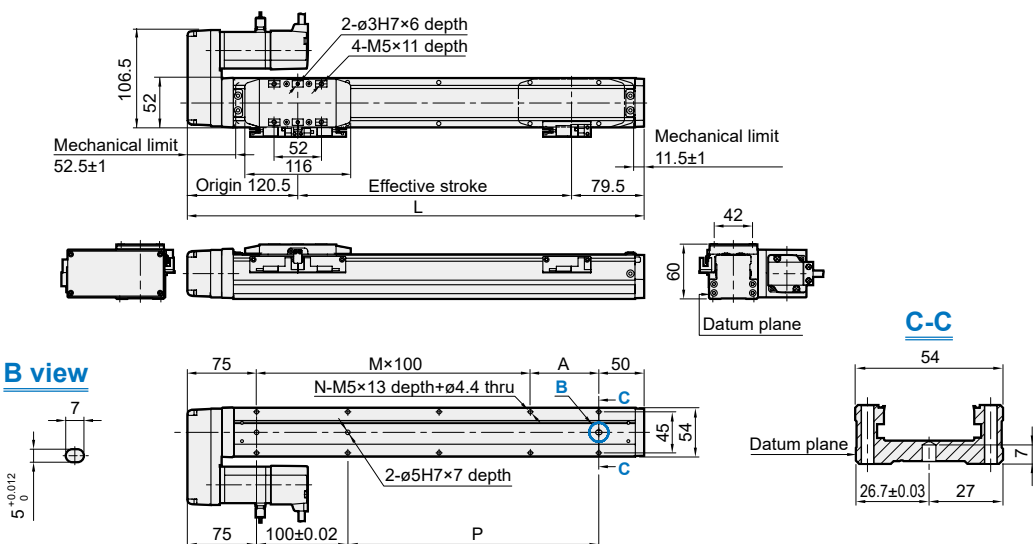


Unit: mm

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	2.4	2.59	2.79	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 on
right side



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	2.4	2.59	2.79	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

METG-8 series

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



Mindman



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection

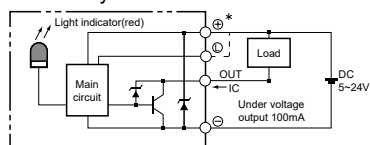


Caution

(Read before installing)



Sensor layout



Specification

Model		METG-8		
Positioning repeatability	(mm)	±0.005		
Ball screw lead	(mm)	5	10	20
Max. speed (*1)	(mm/s)	250	500	1000
AC servo motor	(W)	200W, 400W		
Rated load	Horizontal (kg)	50	30	18
	Vertical (kg)	15	8	3
Max. thrust (*2)	(N)	683 (1388)	341 (694)	174 (347)
Stroke (*3)	(mm)	50~1100 / 50 pitch		
Ball screw	(mm)	C7Ø16		
Coupling	(mm)	10×14/11 (*4)		
Slot-type photomicro sensor		EE-SX674 (NPN)		

*1. Acceleration and deceleration values are set to 0.2 second.

*2. () Value for 400W motor.

*3. Reduce the speed when the stroke exceeds 750 mm due to resonance.

*4. Motor 200W shaft diameter: Panasonic: 11mm, Other: 14 mm.

Order example

METG – 8 – L10 – 100 – BC – M20 – C4

Model

Size

Stroke

50~1100 mm
50 mm pitch

Ball screw lead	
L05	5 mm
L10	10 mm
L20	20 mm

Motor position	
BC	Direct connection
BM	Lower side
BR	Right side
BL	Left side

Flange (For motor installation)			
Applicable motor brand (*1)		Power output	
M	Mitsubishi	20 40	200W 400W servo
	Yaskawa		
	Delta		
P	Panasonic		

Home sensor (*2)	
Out side	
C	Motor side
D	Opposite motor side
No sensor	
E	None

Limit sensor	
Out side	
3	1 Pc
4	2 Pcs
No sensor	
5	None

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. When the stroke is 50mm, the sensor installation has the following restrictions.
1. Home sensor and limit sensor has to be installed on the different side of body.
2. Install sensor trigger on both side.

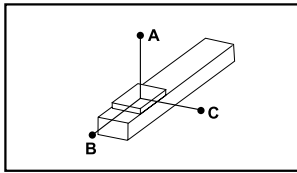
METG-8 Performance charts



SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)

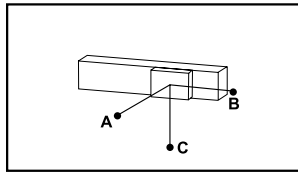
Mindman

Allowable overhang



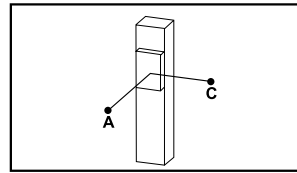
Unit: mm

Horizontal installation		A	B	C
Lead 5	20kg	1560	153	237
	35kg	890	81	126
	50kg	550	53	82
Lead 10	10kg	1730	286	412
	20kg	839	136	196
	30kg	541	86	124
Lead 20	6kg	1213	403	493
	9kg	800	264	323
	18kg	592	194	238



Unit: mm

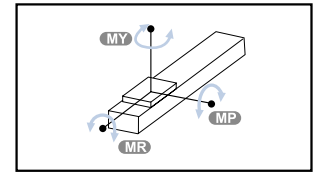
Wall installation		A	B	C
Lead 5	20kg	214	153	1435
	35kg	113	81	845
	50kg	74	53	506
Lead 10	10kg	370	286	1400
	20kg	176	136	800
	30kg	112	86	495
Lead 20	6kg	444	403	760
	9kg	292	264	277
	18kg	214	194	544



Unit: mm

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

Static loading moment



Unit: N.m

MY	318
MP	318
MR	626

- The torque value in the chart indicate the center of gravity.
- Operation life is 10000km when the product is using under the specified conditions.
- Data information is not for ceiling-mount inverse use.
Contact us for the details if you want to apply ceiling-mount inverse usage.

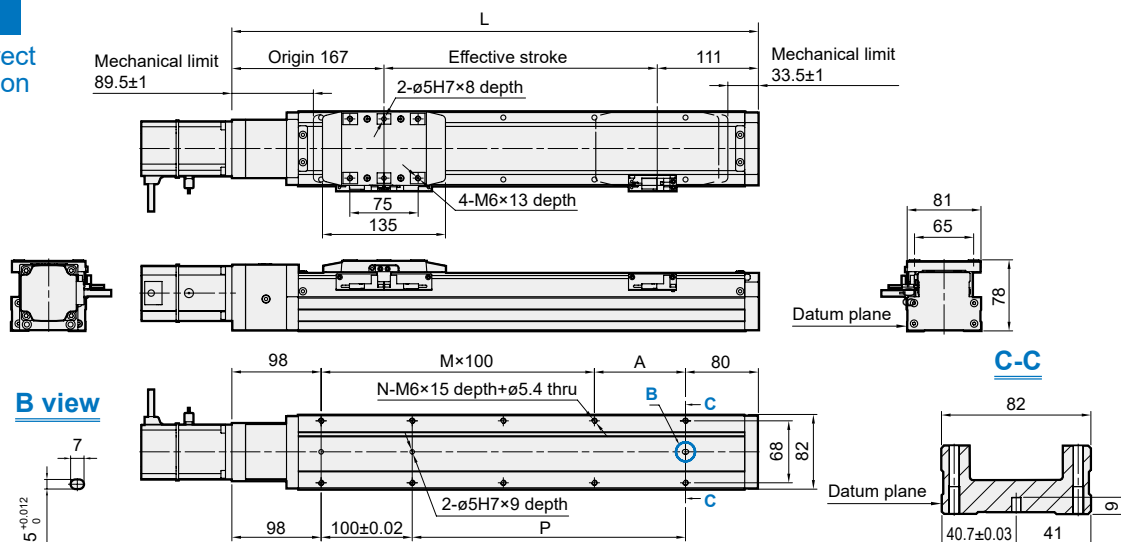
METG-8 Dimensions

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



BC

Motor direct connection

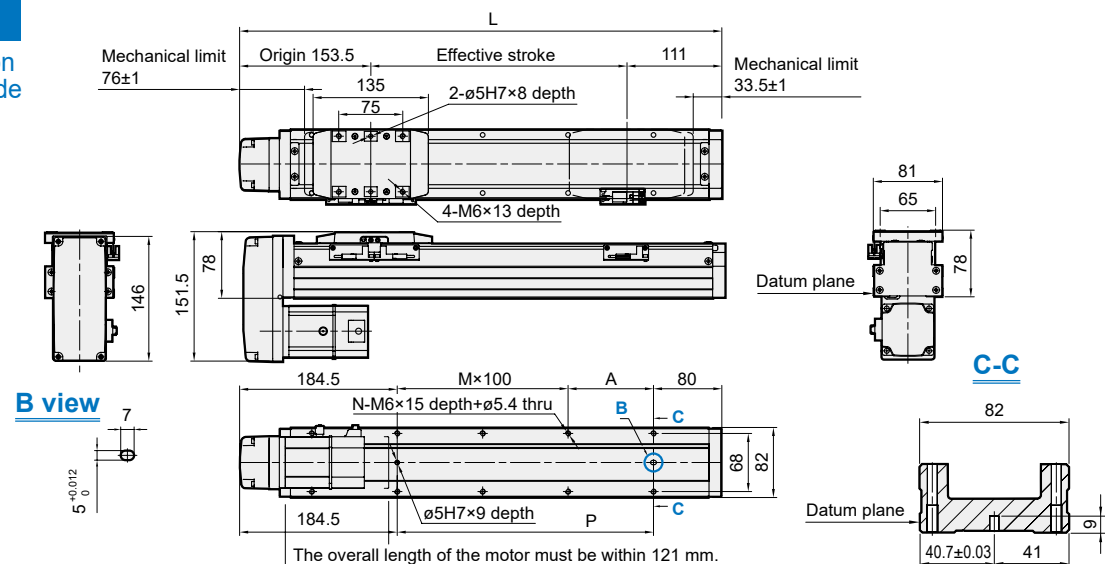


Unit: mm

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	5.18	5.54	5.91	6.27	6.64	7	7.37	7.73	8.1	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 on lower side



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	5.19	5.6	6.12	6.64	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 down side, or the total length over than spec limit, it may not use standard pinhole.
Please contact us if you need more information and requirement.

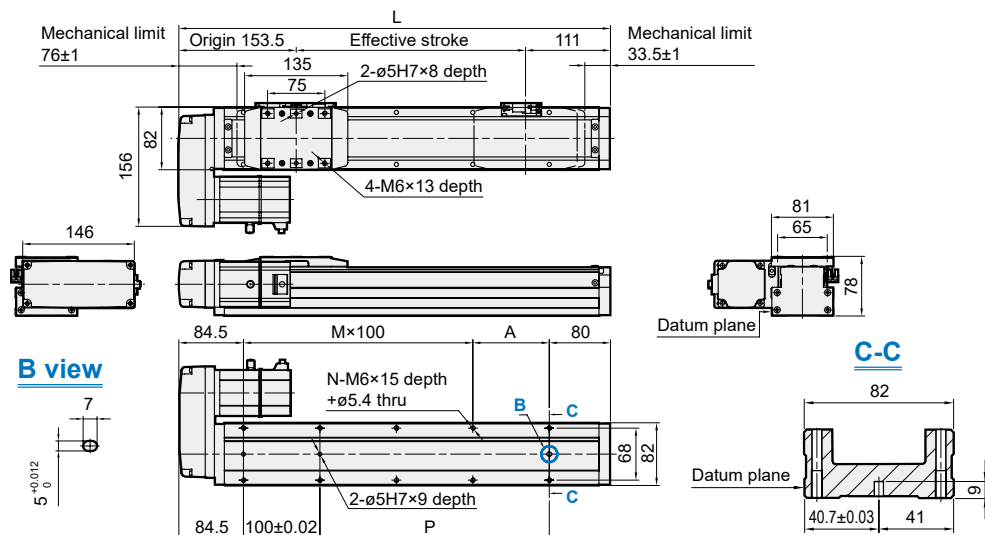
METG-8 Dimensions

SLIDER ELECTRIC ACTUATOR – BUILT-IN GUIDEWAY (WITHOUT MOTOR)



BL

Motor on left side

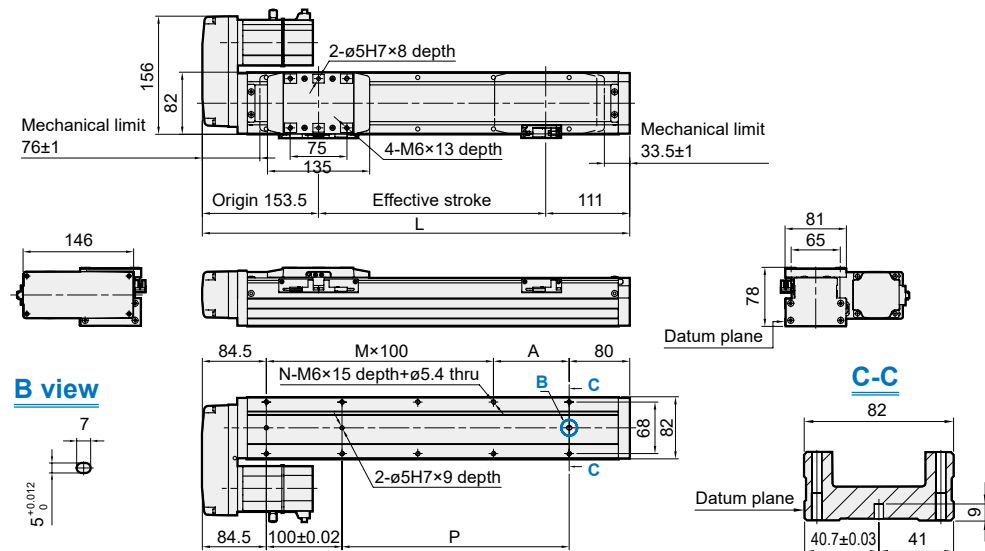


Unit: mm

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	5.19	5.6	6.12	6.64	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 on right side



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	5.19	5.6	6.12	6.64	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

METS2-10 series

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection



Caution for safety
(Read before installing)



Environment Standard

Actuation type Ball screw

Servo motor 50/100/200/400W

Guide type Linear guide

Feature

- Modular product can save your time of designing and assembly, and greatly increase your development efficiency.
- High stiffness body made with integrated aluminum extrusion.
- It provides several position for motor installment.
- It is available for customized service.

Specification

Model	METS2-10		
Positioning repeatability (mm)	±0.01		
Lead (mm)	5	10	20
Max. speed (mm/s)	250	500	1000
Stroke (mm)	100~1000		
Ball screw O.D. (mm)	C7 ø16		
Coupling diameter (mm)	ø10		
Slot-type photomicro sensor	RLT		

AC servo motor (W)	100 (50)		
Rated load	Horizontal (kg)	50	30
	Vertical (kg)	12	8
Max. thrust (N)	341 (170)	170 (85)	85 (42)

AC servo motor (W)	400 (200)		
Rated load	Horizontal (kg)	50	30
	Vertical (kg)	12	8
Max. thrust (N)	1366 (683)	682 (341)	348 (174)

*1. Reduce the speed when the stroke exceeds 750 mm due to resonance.
*2. Acceleration and deceleration value are set to 0.2 second.

Order example

METS2-10 - L05 - 100 - BC - M10 B

Model	Size	Stroke	Motor position	Flange (For motor installation)	Brakes
	Ball screw lead	100~1000 mm		Applicable motor brand (*2)	
	L05 5 mm		M Built-in (*1)	M Mitsubishi 10 50/100W servo Yaskawa 40 200/400W Delta	- No brake
	L10 10 mm		BC Direct connection		B With brake
	L20 20 mm		BM Lower side		
			BR Right side	P Panasonic 10 50/100W 20 200W 40 400W	
			BL Left side		

*1. Not applicable for 200/400W servo.

*2. Motor not included. Please refer to the "Motor Selection Table" for details.

*3. Determination is required only when "Built-in" type is chosen.

Slot-type photomicro sensor set

RZ - ET1 - 10 - N

Sensor set	Size	Sensor type
		N NPN
		P PNP

* With RLT sensor, bolt, nut and cable 2m.

Accessory kits

AK - ET1 - 10 - 1

Accessory kits	Size	Mounting seat quantity
	1	1 pc
	2	2 pcs

* With light baffle, mounting seat, and bolt.

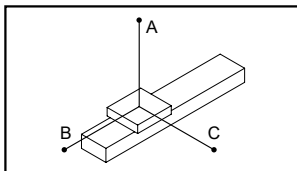
METS2-10 Performance charts

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



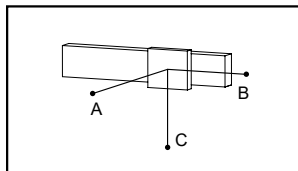
Mindman

Allowable overhang



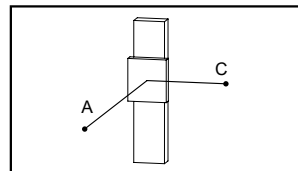
Unit: mm

Horizontal installation	A	B	C
AC servo motor 100W / 200W			
Lead 5	30kg	547	42
	40kg	391	29
	50kg	298	22
Lead 10	15kg	521	84
	25kg	298	47
	30kg	242	37
Lead 20	5kg	675	224
	10kg	330	107
	18Kg	175	55



Unit: mm

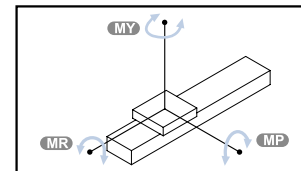
Wall installation	A	B	C
AC servo motor 100W / 200W			
Lead 5	25kg	52	53
	35kg	35	35
	50kg	21	22
Lead 10	10kg	124	131
	20kg	58	61
	30kg	35	37
Lead 20	6kg	160	185
	12kg	76	88
	18Kg	48	55



Unit: mm

Vertical installation	A	C
AC servo motor 100W / 200W		
Lead 5	5kg	310
	8kg	192
	12kg	129
Lead 10	4kg	344
	8kg	172
	—	—
Lead 20	2kg	546
	3kg	364
	—	—

Static loading moment



Unit: N.m

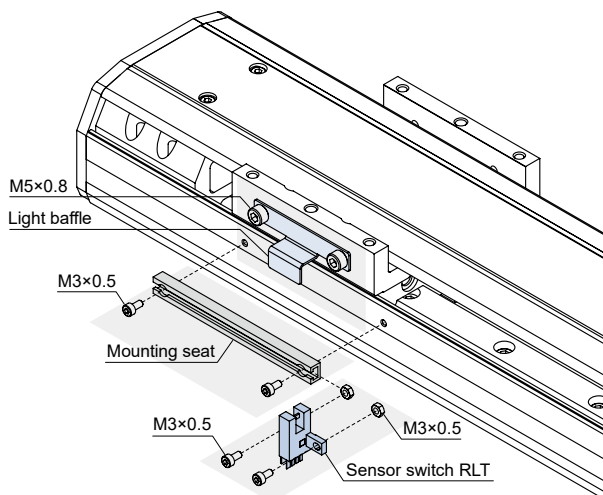
Horizontal	
AC servo motor 100W / 200W	
MY	110
MP	110
MR	120

METS2-10 Sensor mounting & Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	Bolt (×2)	Nut (×2)

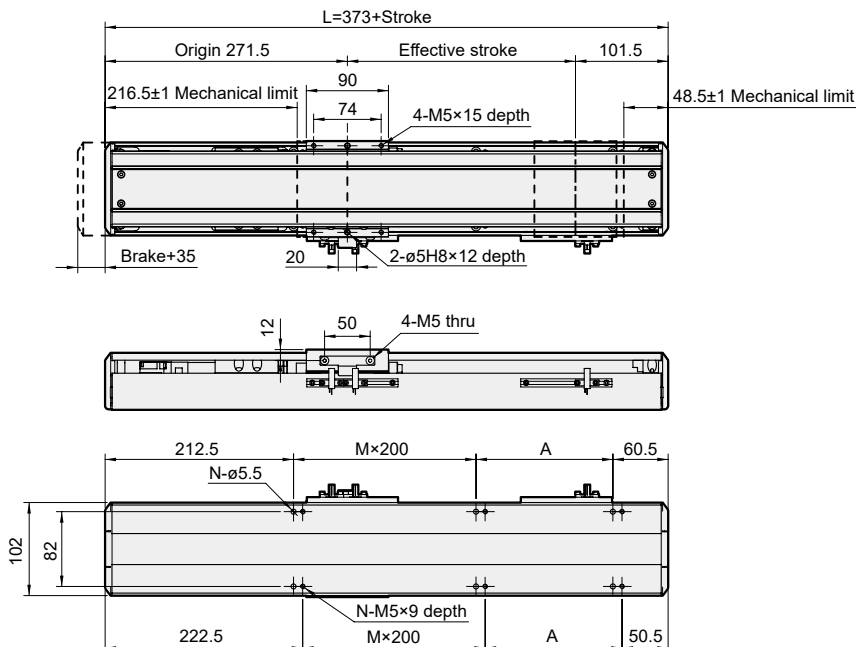
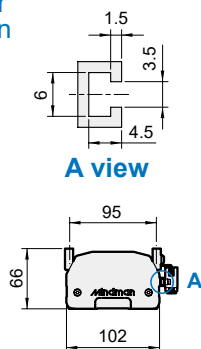
* With cable 2m.

Accessory kits

M5	M3		
AK-ET1-10-1			
Light baffle (×1)	Bolt (×2)	Mounting seat (×1)	Bolt (×2)
AK-ET1-10-2			
Light baffle (×1)	Bolt (×2)	Mounting seat (×2)	Bolt (×4)

Dimensions

M
Motor
built-in



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L	467	517	567	617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317	1367
A	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
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
Weight (kg)	4.77	5.14	5.51	5.88	6.26	6.63	7.00	7.37	7.74	8.12	8.49	8.86	9.23	9.60	9.98	10.35	10.72	11.09	11.46

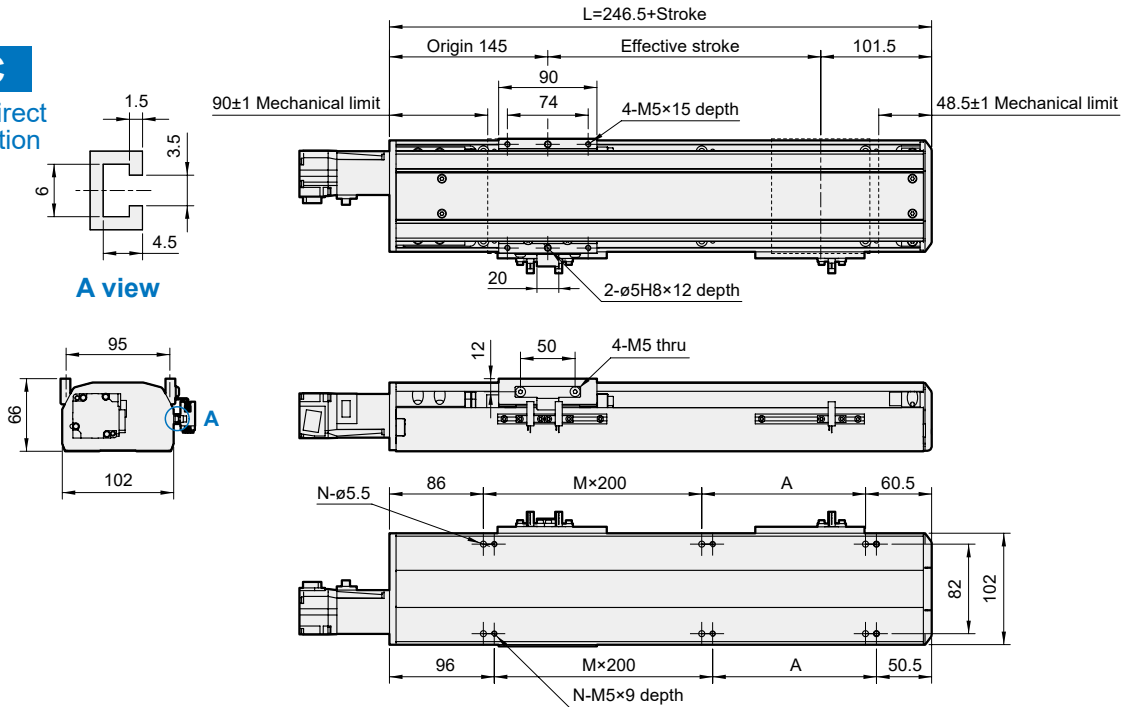
* The brake of gross weight + 0.14 kg.

METS2-10 Dimensions

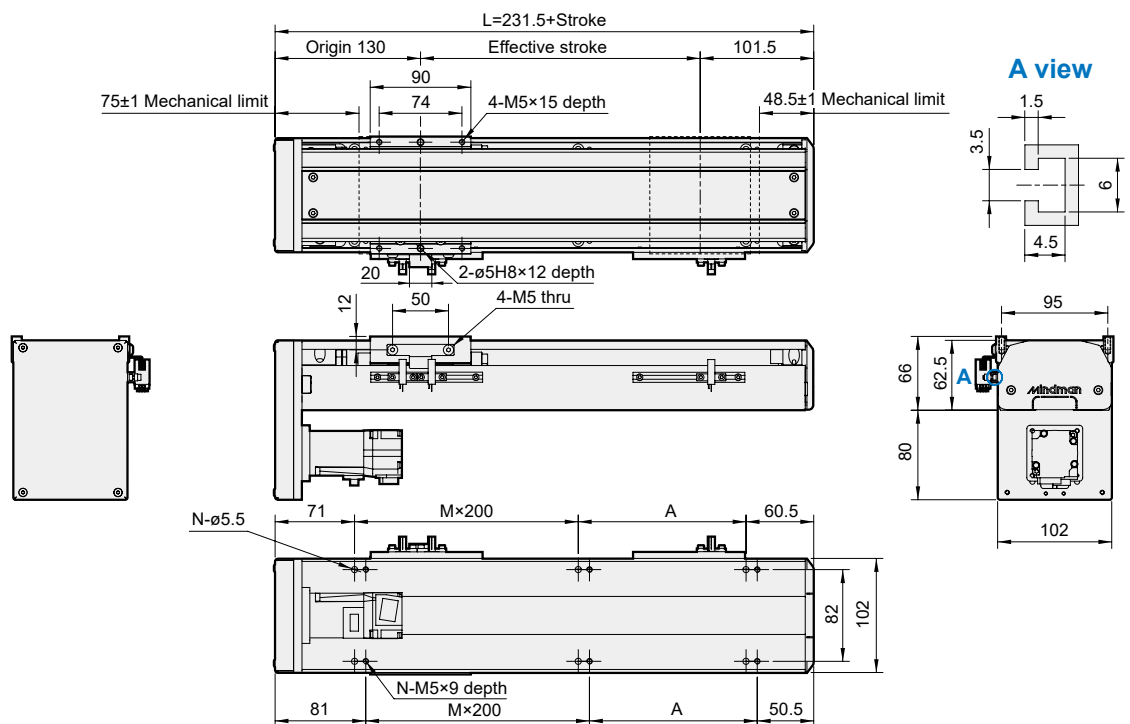
SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



BC
Motor direct
connection



BM
Motor on
lower side



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
L	BC	346.5	396.5	446.5	496.5	546.5	596.5	646.5	696.5	746.5	796.5	846.5	896.5	946.5	996.5	1046.5	1096.5	1146.5	1196.5	1246.5
	BM	331.5	381.5	431.5	481.5	531.5	581.5	631.5	681.5	731.5	781.5	831.5	881.5	931.5	981.5	1031.5	1081.5	1131.5	1181.5	1231.5
A		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
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
Weight (kg)	BC	4.41	4.79	5.16	5.53	5.90	6.27	6.65	7.02	7.39	7.76	8.13	8.51	8.88	9.25	9.62	9.99	10.37	10.74	11.11
	BM	4.44	5.22	5.18	5.55	5.93	6.30	6.67	7.04	7.41	7.79	8.16	8.53	8.90	9.27	9.65	10.02	10.39	10.76	11.13

METS2-10 Dimensions

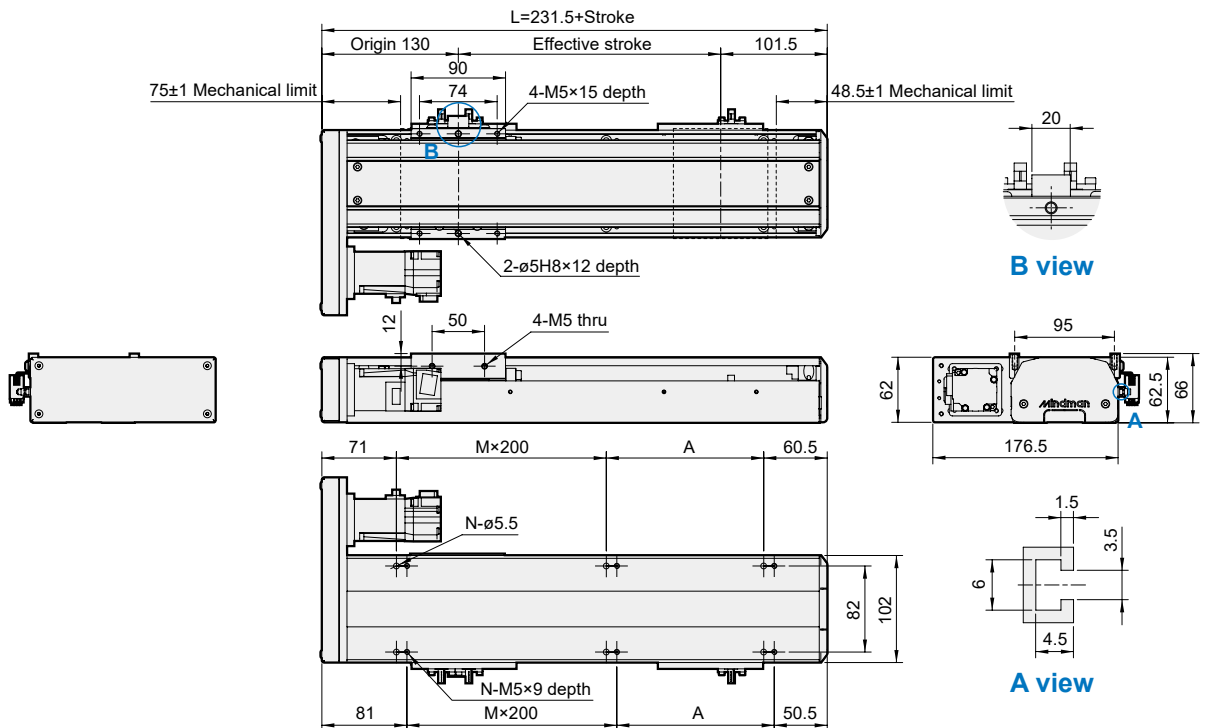
SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Mindman

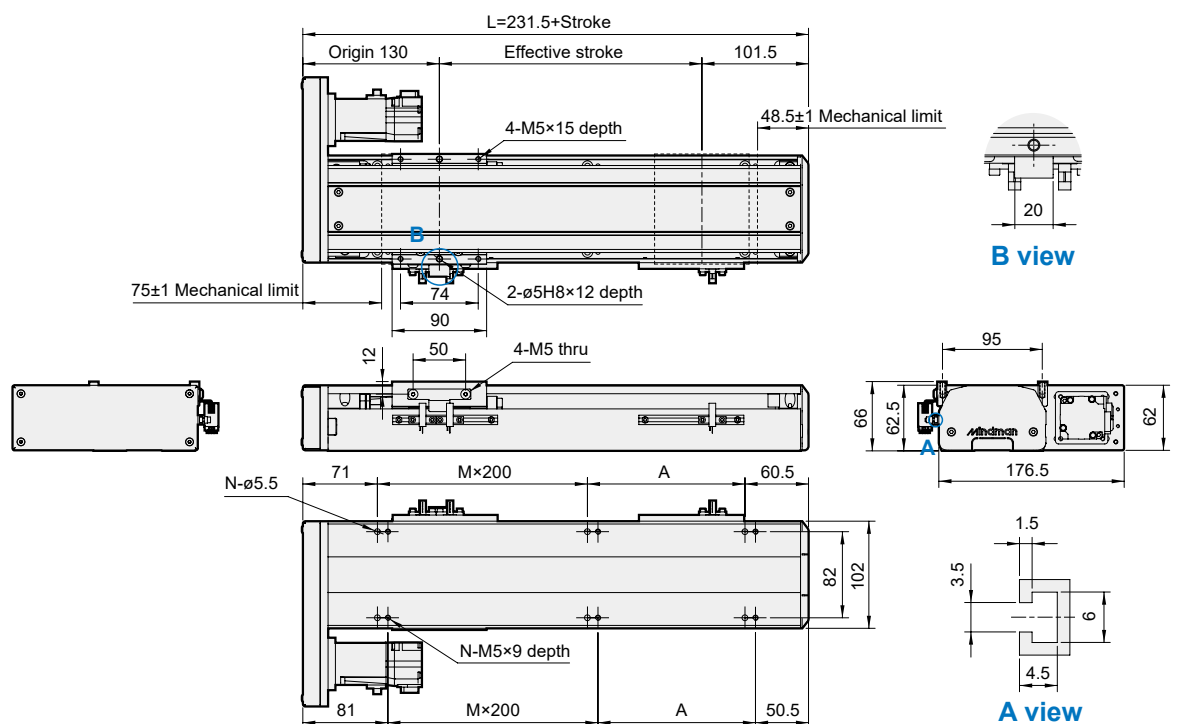
BL

Motor on
left side



BR

Motor on
right side



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L	331.5	381.5	431.5	481.5	531.5	581.5	631.5	681.5	731.5	781.5	831.5	881.5	931.5	981.5	1031.5	1081.5	1131.5	1181.5	1231.5
A	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
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
Weight (kg)	4.39	4.76	5.13	5.50	5.88	6.25	6.62	6.99	7.36	7.74	8.11	8.48	8.85	9.22	9.60	9.97	10.34	10.71	11.08

METS2-14 series

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection



Caution for safety
(Read before installing)



Use environment	Standard
Actuation type	Ball screw
Servo motor	200W / 400W
Guide type	Linear guide

Feature

- Modular product can save your time of designing and assembly, and greatly increase your development efficiency.
- High stiffness body made with integrated aluminum extrusion.
- It provides several position for motor installment.
- It is available for customized service.

Specification

Model	METS2-14		
Positioning repeatability (mm)	±0.01		
Lead (mm)	5	10	20
Max. speed (mm/s)	250	500	1000
Stroke (mm)	100~1000		
Ball screw O.D. (mm)	C7 ø16		
Coupling (mm)	ø10		
Slot-type photomicro sensor	RLT		

AC servo motor (W)	200		
Rated load	Horizontal (kg)	95	75
	Vertical (kg)	27	18
Max. thrust (N)	683	341	174

AC servo motor (W)	400		
Rated load	Horizontal (kg)	110	88
	Vertical (kg)	33	22
Max. thrust (N)	1388	694	347

*1. Reduce the speed when the stroke exceeds 750 mm due to resonance.

*2. Acceleration and deceleration value are set to 0.2 second.

Order example

METS2-14 - L05 - 100 - BC - M40 B						
Model	Size	Stroke	Motor position	Flange (For motor installation)		Brakes
	Ball screw lead	100~1000 mm		Applicable motor brand (*1)	Dimensions	
	L05 5 mm		M Built-in	M	40	200W 400W servo
	L10 10 mm		BC Direct connection			
	L20 20 mm		BM Lower side			
			BR Right side	P	20	200W
			BL Left side		40	400W
						— No brake
						B With brake

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

*2. Determination is required only when "Built-in" type is chosen.

Slot-type photomicro sensor set

RZ - ET1 - 14 - N		
Sensor set	Size	Sensor type
		N NPN
		P PNP

* With RLT sensor, bolt, nut and cable 2m.

Accessory kits

AK - ET1 - 14	
Accessory kits	Size

* With light baffle and bolt.

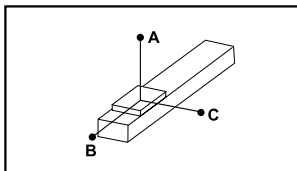
METS2-14 Performance charts

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



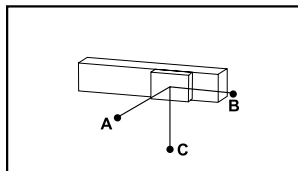
Mindman

Allowable overhang



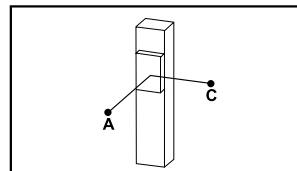
Unit: mm

Horizontal installation		A	B	C
AC servo motor 200W				
Lead 5	60kg	2300	250	240
	80kg	1600	180	170
	95kg	1150	145	140
Lead 10	30kg	2000	500	450
	50kg	1400	280	250
	75kg	1000	170	160
Lead 20	10kg	2300	1200	1000
	20kg	1400	600	500
	35kg	1000	330	290



Unit: mm

Wall installation		A	B	C
AC servo motor 200W				
Lead 5	60kg	200	110	1395
	80kg	130	55	1115
	95kg	85	25	895
Lead 10	30kg	415	330	1275
	50kg	235	155	930
	75kg	130	55	700
Lead 20	10kg	995	1200	1700
	20kg	500	555	985
	35kg	270	230	600

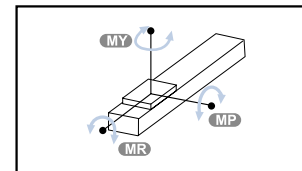


Unit: mm

Vertical installation		A	C
AC servo motor 200W			
Lead 5	20kg	755	610
	25kg	605	485
	27kg	500	480
Lead 10	10kg	1350	1100
	15kg	900	725
	18kg	675	540
Lead 20	6kg	1695	1360
	—	—	—
	—	—	—
AC servo motor 400W			
Lead 20	4kg	2400	2015
	6kg	1700	1365
	8kg	1300	1055

* When the motor power is 400W, the max. payload is 110 kg (lead 5), 88 kg (lead 10), 40 kg (lead 20), and the load torque distance remains unchanged.

Static loading moment



Unit: N.m

Horizontal	
AC servo motor 200W	
MY	262
MP	262
MR	261

* When the motor power is 400W, the max. payload is 33 kg (lead 5), 22kg (lead 10), and the load torque distance remains unchanged.

METS2-14 Sensor mounting & Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Rotary Actuator

Clamp Cylinder

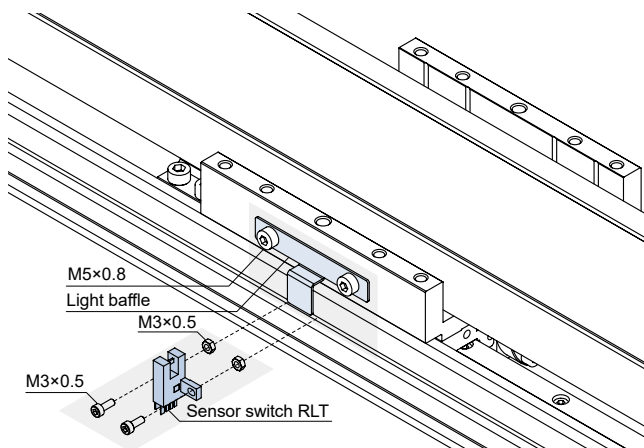
End of Arm Tooling

Electric Actuator

Auxiliary Equipment

Hydraulic Cylinder

Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	Bolt (×2)	Nut (×2)

* With cable 2m.

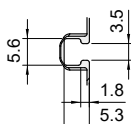
Accessory kits

Light baffle (×1)	Bolt (×2)

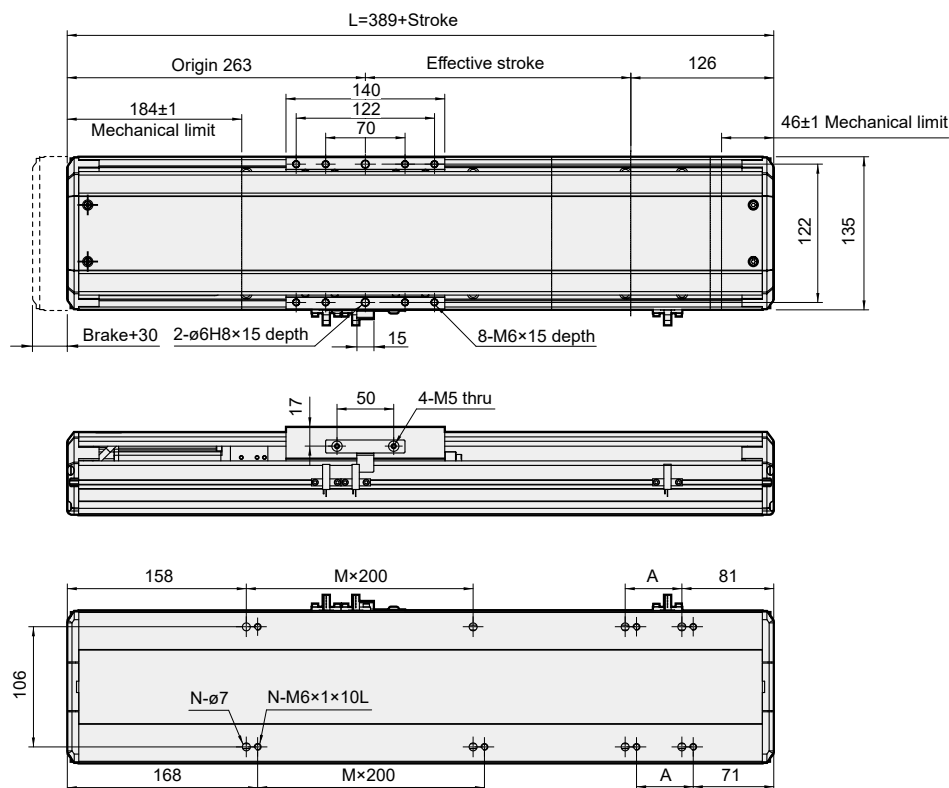
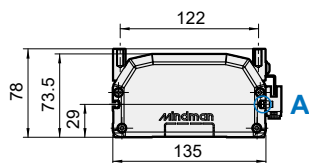
Dimensions

M

Motor built-in



A view

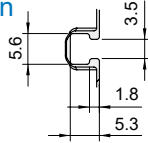


Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269	1319	1369	1419
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.92	7.40	7.87	8.35	8.82	9.30	9.78	10.25	10.73	11.20	11.68	12.15	12.63	13.10	13.58	14.05	14.53	15.01	15.48

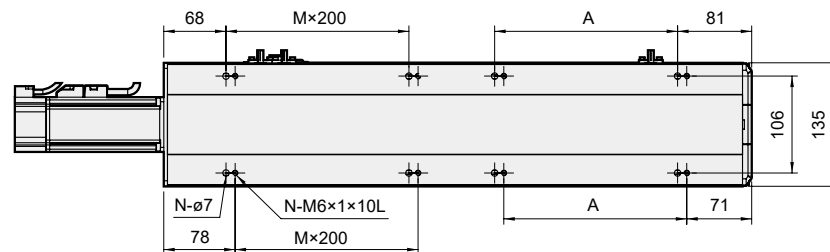
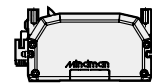
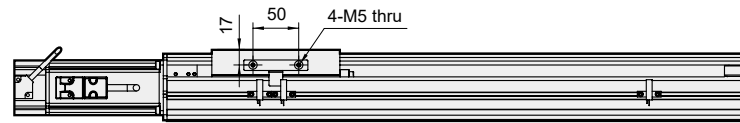
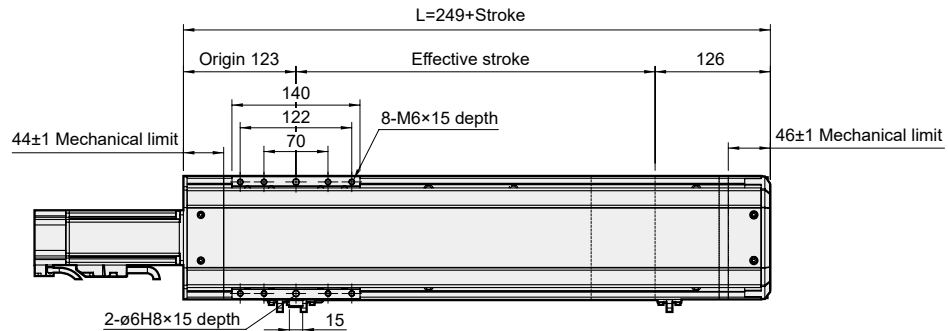
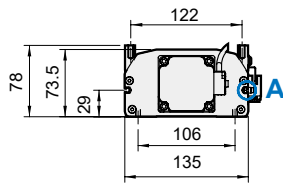
METS2-14 Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)

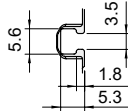
BC Motor direct connection



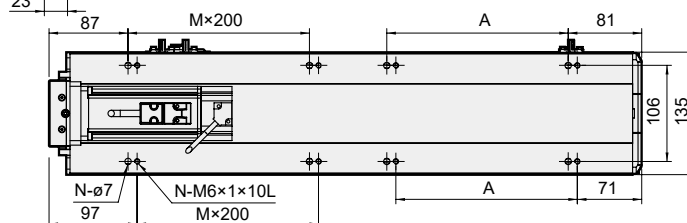
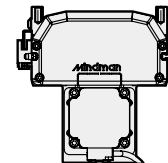
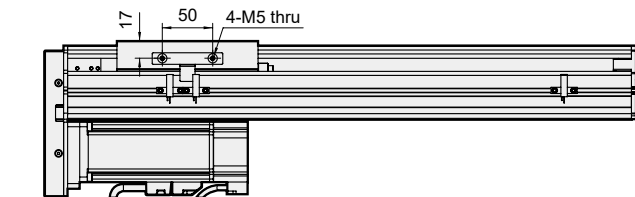
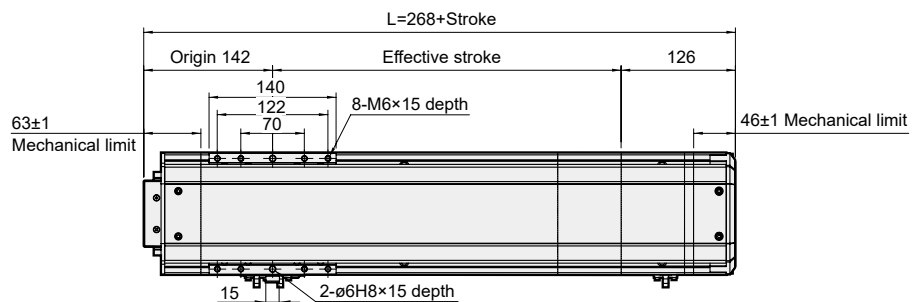
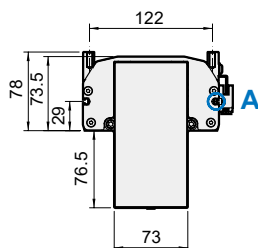
A view



BM Motor on lower side



A view



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
L	BC	349	399	449	499	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249
	BM	368	418	468	518	568	618	668	718	768	818	868	918	968	1018	1068	1118	1168	1218	1268
A		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
N		4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
Weight (kg)	BC	6.24	6.71	7.19	7.66	8.14	8.62	9.09	9.57	10.04	10.52	10.99	11.47	11.94	12.42	12.90	13.37	13.85	14.32	14.80
	BM	6.75	7.22	7.70	8.18	8.65	9.13	9.60	10.08	10.55	11.03	11.50	11.98	12.46	12.93	13.41	13.88	14.36	14.83	15.31

METS2-14 Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Rotary Actuator

Clamp Cylinder

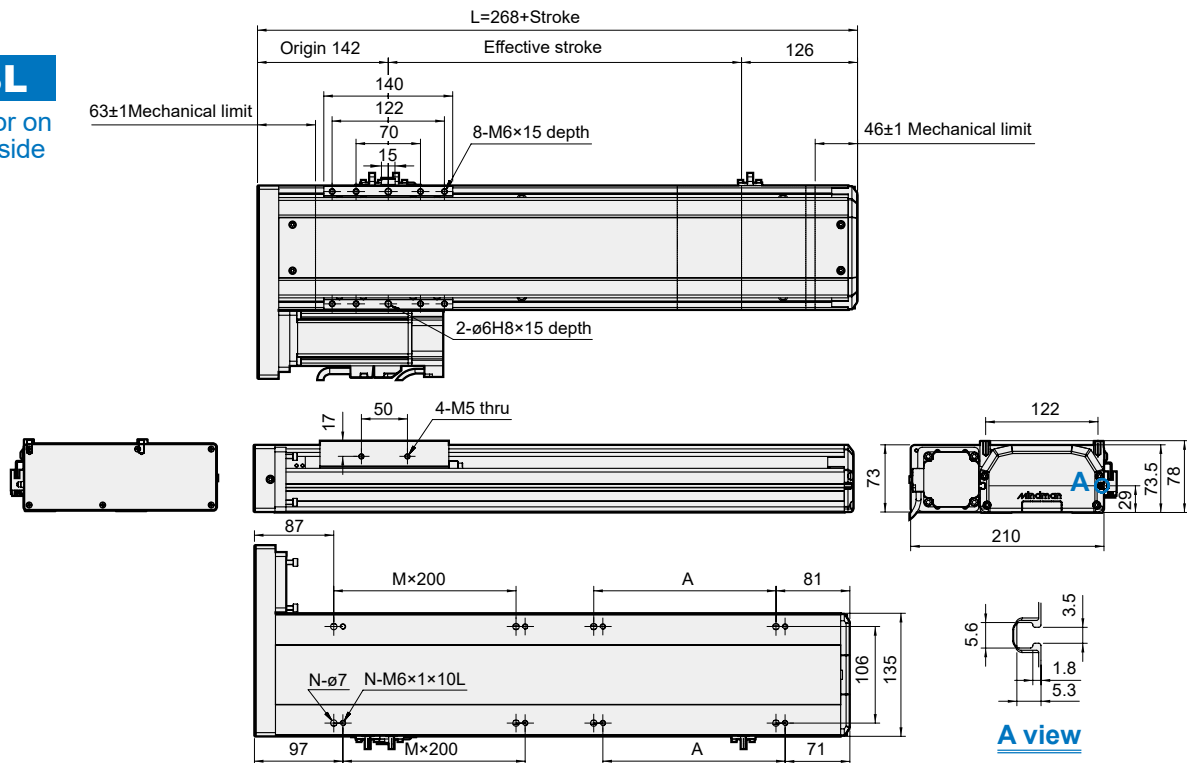
End of Arm Tooling

Electric Actuator

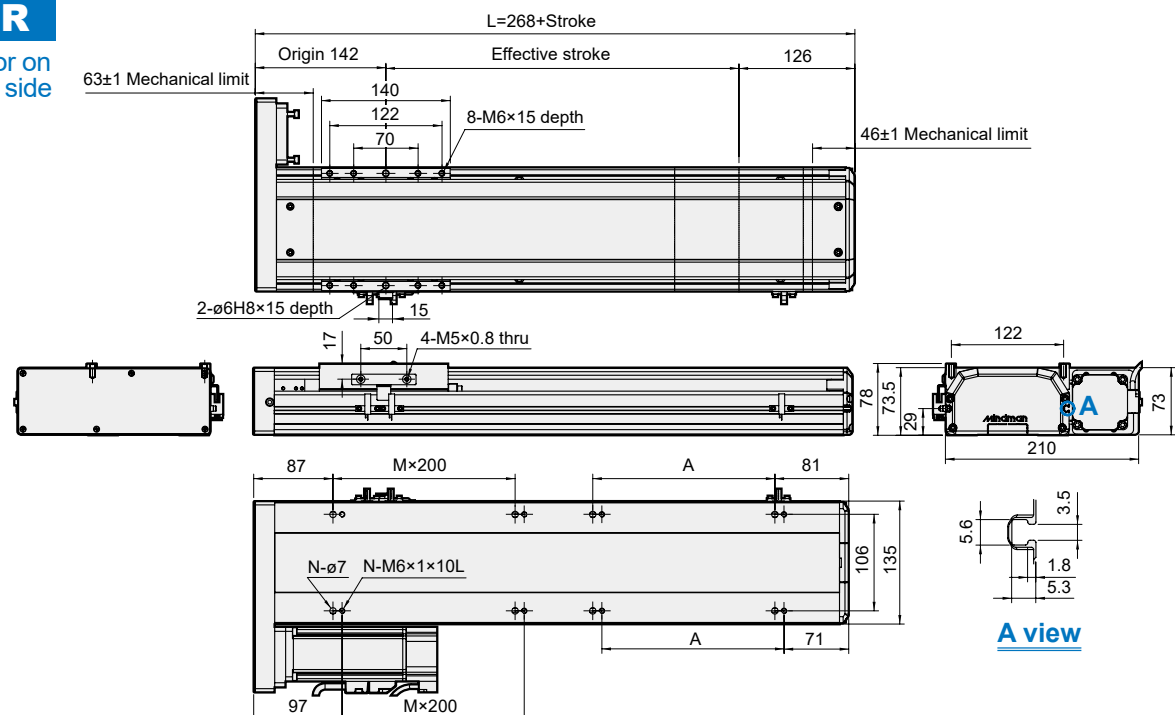
Auxiliary Equipment

Hydraulic Cylinder

BL
Motor on left side



BR
Motor on right side



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
L	BL	368	418	468	518	568	618	668	718	768	818	868	918	968	1018	1068	1118	1168	1218	1268
	BR	368	418	468	518	568	618	668	718	768	818	868	918	968	1018	1068	1118	1168	1218	1268
A		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
N		4	6	6	6	6	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)		7.03	7.50	7.98	8.45	8.93	9.40	9.88	10.36	10.83	11.31	11.78	12.26	12.73	13.21	13.68	14.16	14.64	15.11	15.59

METS2-17 series

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection



Caution for safety
(Read before installing)



Environment	Standard
Actuation type	Ball screw
Servo motor	200/ 400/ 750W
Guide type	Linear guide

Feature

- Modular product can save your time of designing and assembly, and greatly increase your development efficiency.
- High stiffness body made with integrated aluminum extrusion.
- It provides several position for motor installment.
- It is available for customized service.

Specification

Model	METS2-17		
Positioning repeatability (mm)	±0.01		
Lead (mm)	5	10	20
Max. speed (mm/s)	250	500	1000
Stroke (mm)	100~1200		
Ball screw O.D. (mm)	C7 ø20		
Coupling diameter (mm)	ø10		
Slot-type photomicro sensor	RLT		

AC servo motor (W)	400 (200)		
Rated load	Horizontal (kg)	120	110
	Vertical (kg)	40	30
Max. thrust (N)	1388 (694)	694 (347)	347 (173)

AC servo motor (W)	750		
Rated load	Horizontal (kg)	120	120
	Vertical (kg)	50	40
Max. thrust (N)	2563	1281	640

*1. Reduce the speed when the stroke exceeds 750 mm due to resonance.

*2. Acceleration and deceleration value are set to 0.2 second.

Order example

METS2-17 - L05 - 100 - BC - M40 B

Model	Size	Stroke	Motor position	Flange (For motor installation)	Brakes
	Ball screw lead	100~1200 mm		Applicable motor brand (*2)	
	L05 5 mm		M Built-in (*1)	M	No brake
	L10 10 mm		BC Direct connection	Mitsubishi	
	L20 20 mm		BM Lower side	Yaskawa	
			BR Right side	Delta	75 750W servo
			BL Left side		
				P	20 200W

*1. Not applicable for 750W servo.

*2. Motor not included. Please refer to the "Motor Selection Table" for details.

*3. Determination is required only when "Built-in" type is chosen.

Slot-type photomicro sensor set

RZ - ET1 - 14 - N

Sensor set	Size	Sensor type
		N NPN
		P PNP

* With RLT sensor, bolt, nut and cable 2m.

* Use the same sensor set with METS2-14.

Accessory kits

AK - ET1 - 17

Accessory kits

Size

* With light baffle and bolt.

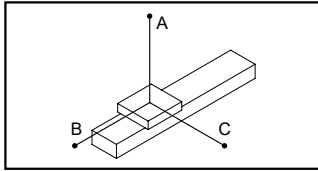
METS2-17 Performance charts

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



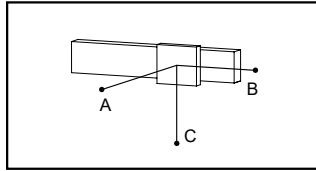
Mindman

Allowable overhang



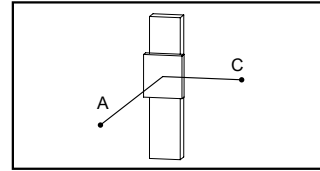
Unit: mm

Horizontal installation		A	B	C
AC servo motor 400W / 750W				
Lead 5	70kg	3235	349	408
	90kg	2482	263	306
	120kg	1850	187	217
Lead 10	65kg	1911	338	373
	85kg	1445	248	276
	110kg	1102	182	202
Lead 20	120kg*	1000	164	182
	35kg	1666	547	538
	55kg	1030	331	328
	75kg	733	231	230
	83kg*	654	206	204



Unit: mm

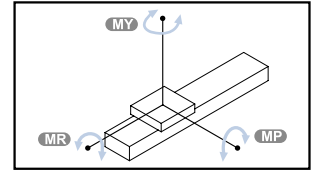
Wall installation		A	B	C
AC servo motor 400W / 750W				
Lead 5	75kg	377	322	2988
	95kg	288	246	2333
	120kg	218	187	1850
Lead 10	60kg	408	368	2092
	80kg	296	266	1554
	110kg	202	182	1102
	120kg*	182	164	1002
Lead 20	30kg	633	644	1961
	50kg	365	369	1143
	75kg	230	231	733
	83kg*	204	206	656



Unit: mm

Vertical installation		A	C
AC servo motor 400W / 750W			
Lead 5	20kg	1368	1368
	30kg	911	911
	40kg	683	683
	50kg*	546	546
Lead 10	15kg	1618	1618
	25kg	970	970
	30kg	808	808
	40kg*	607	607
Lead 20	10kg	1922	1922
	14kg	1377	1377
	25kg*	769	769

Static loading moment



Unit: N.m

Horizontal	
AC servo motor 400W / 750W	
MY	1032
MP	1034
MR	908

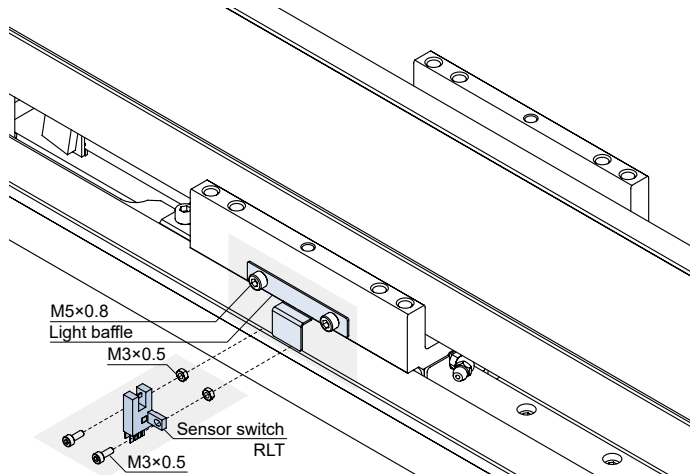
* Only for 750W motor.

METS2-17 Sensor mounting & Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Slot-type photomicro sensor mounting



Sensor set

Sensor switch (×1)	M3 Bolt (×2)	M3 Nut (×2)

* With cable 2m.

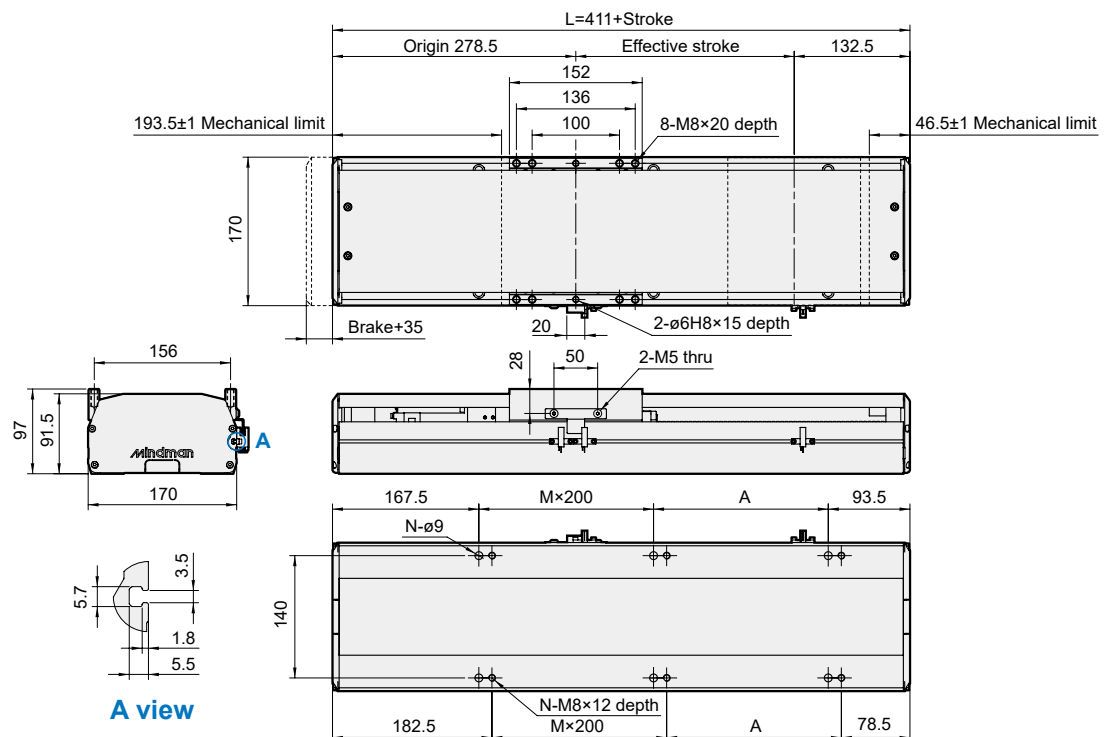
Accessory kits

Light baffle (×1)	M5 Bolt (×2)

Dimensions

M

Motor built-in



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
L	511	561	611	661	711	761	811	861	911	961	1011	1061	1111	1161	1211	1261	1311	1361	1411	1461	1511	1561	1611
A	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
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16
Weight (kg)	10.69	11.54	12.40	13.25	14.11	14.96	15.81	16.67	17.52	18.38	19.23	20.08	20.94	21.79	22.65	23.50	24.35	25.21	26.06	26.91	27.77	28.62	29.48

* The brake of gross weight + 0.48 kg.

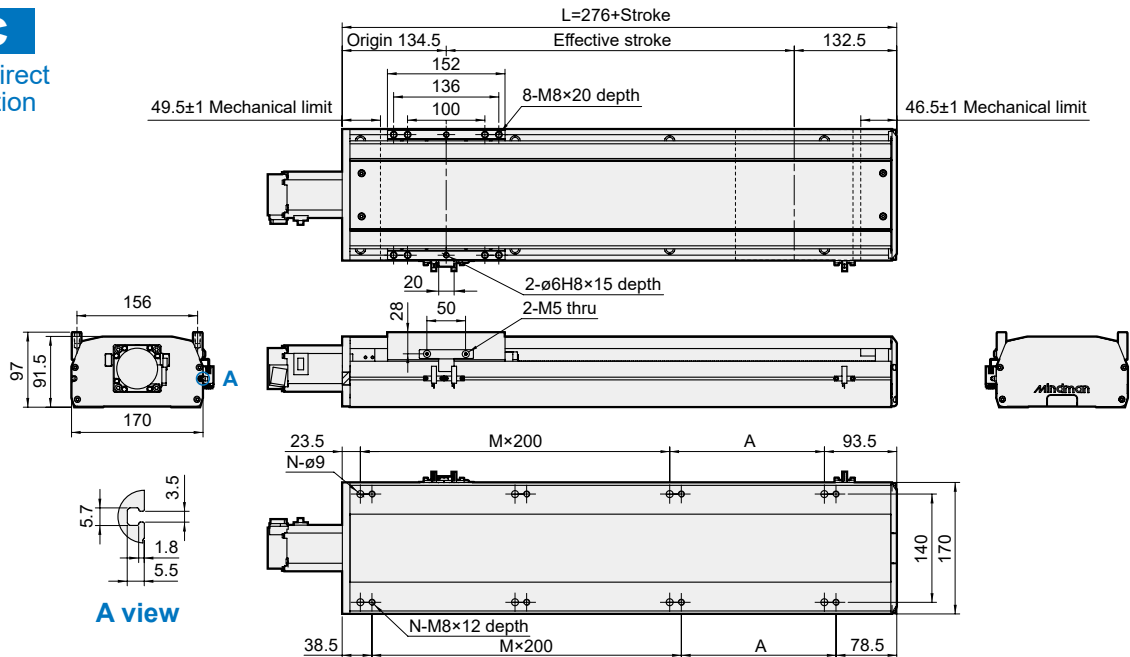
METS2-17 Dimensions

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



BC

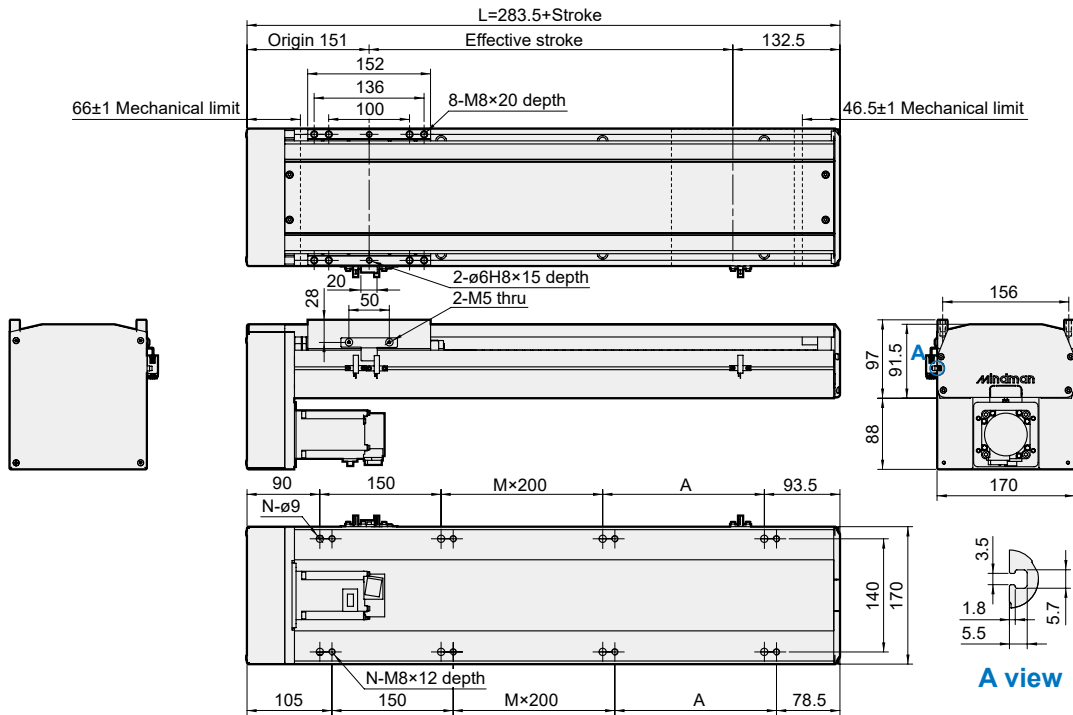
Motor direct
connction



A view

BM

Motor on
lower side



A view

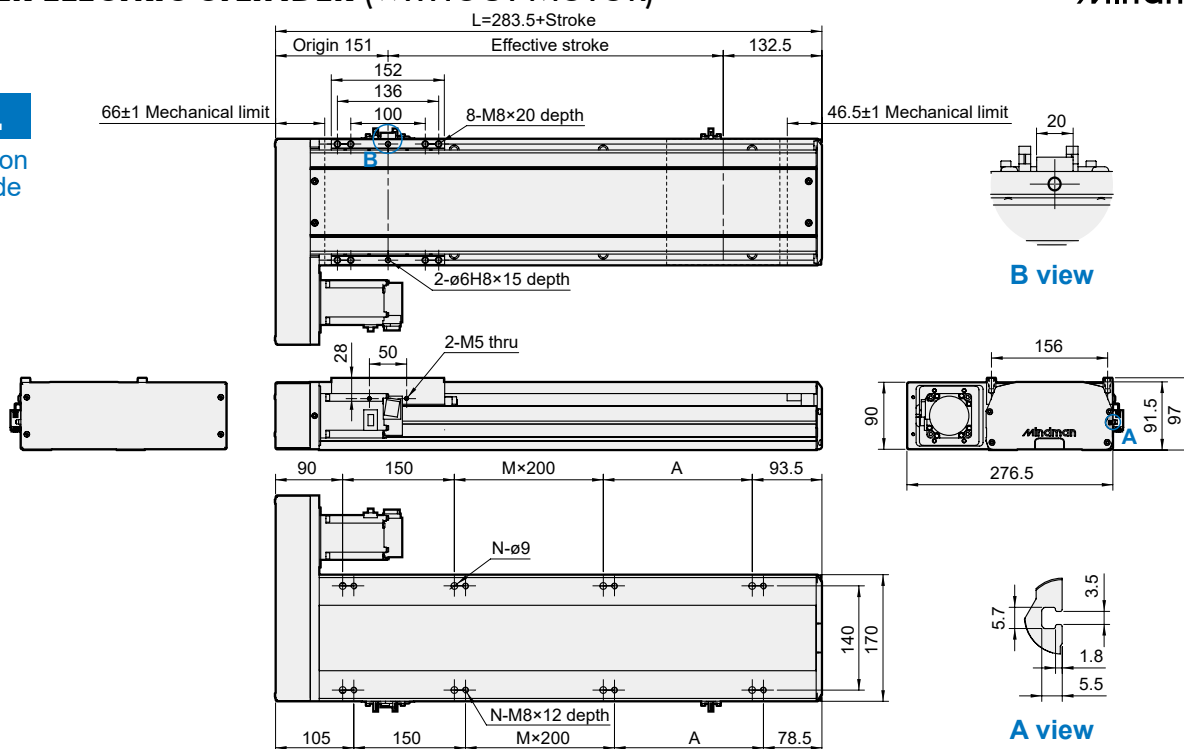
Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
L	BC	367	417	467	517	567	617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317	1367	1417	1467
	BM	383.5	433.5	483.5	533.5	583.5	633.5	683.5	733.5	783.5	833.5	883.5	933.5	983.5	1033.5	1083.5	1133.5	1183.5	1233.5	1283.5	1333.5	1383.5	1433.5	1483.5
A		50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	BC	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6
	BM	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N		6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16
Weight (kg)	BC	9.60	10.45	11.30	12.16	13.01	13.87	14.72	15.57	16.43	17.28	18.13	18.99	19.84	20.70	21.55	22.40	23.26	24.11	24.96	25.82	26.67	27.53	28.38
	BM	10.72	11.57	12.43	13.28	14.13	14.99	15.84	16.69	17.55	18.40	19.26	20.11	20.96	21.82	22.67	23.52	24.38	25.23	26.09	26.94	27.79	28.65	29.50

METS2-17 Dimensions

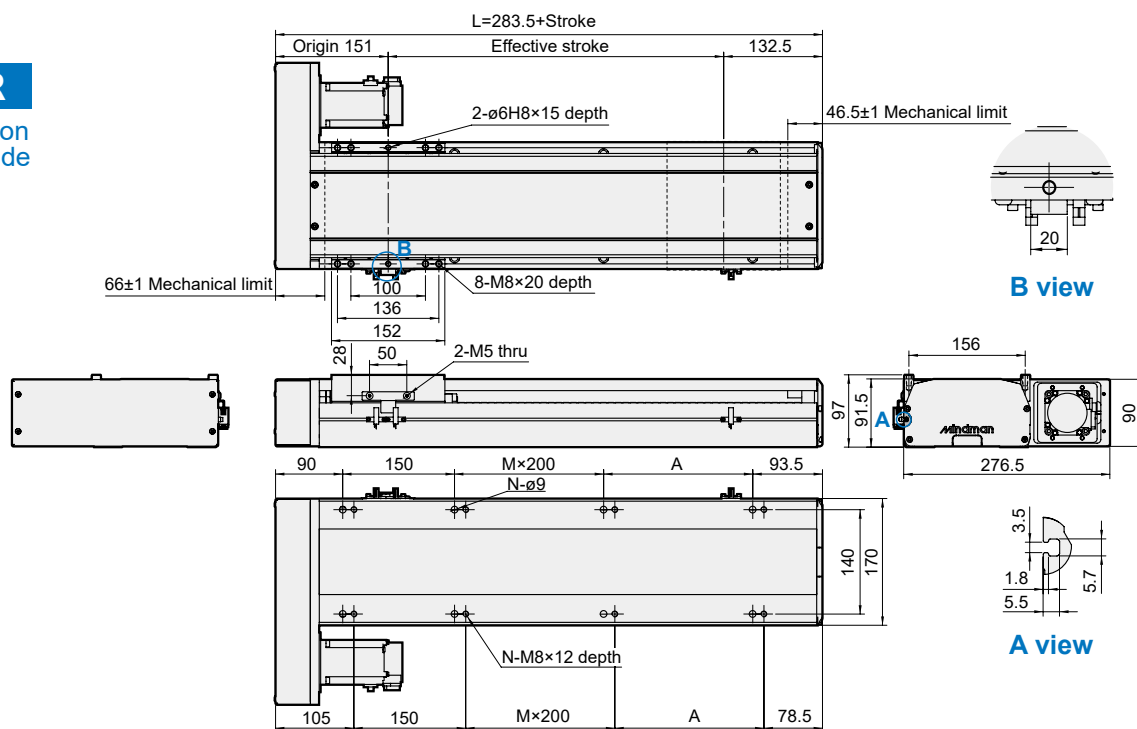
SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



BL
Motor on
left side



BR
Motor on
right side



Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
L	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
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16
Weight (kg)	10.55	11.40	12.26	13.11	13.97	14.82	15.67	16.53	17.38	18.23	19.09	19.94	20.80	21.65	22.50	23.36	24.21	25.06	25.92	26.77	27.63	28.48	29.33

METS-22 series

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



Mindman



Selection table



Applications



Inner structure



Measuring tools



Reference data



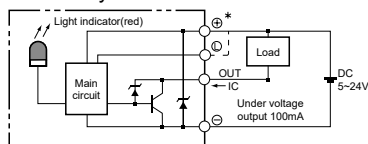
Motor selection



Caution for safety
(Read before installing)



Sensor layout



Specification

Model		METS-22			
Positioning repeatability	(mm)	±0.01			
Ball screw lead	(mm)	5	10	25	40
Max. speed	(mm/s)	250	500	1250	2000
AC servo motor	(W)	750W			
Rated load	Horizontal (kg)	150	150	120	60
	Vertical (kg)	55	45	20	10
Max. thrust	(N)	2563	1281	640	320
Stroke	(mm)	100~1500 / 50 pitch			
Ball screw	(mm)	C7ø25	C7ø25	C7ø25	C7ø20
High rigidity linear guide	(mm)	W23×H18			
Coupling	(mm)	17×19			12×19
Slot-type photomicro sensor	Outside	EE-SX672 (NPN)			
	Built in	EE-SX674 (NPN)			

Order example

METS-22 - L10 - 100 - M - M75 B - C4

Model

Size

Stroke

100~1500 mm
50 mm pitch

Brakes^(*)

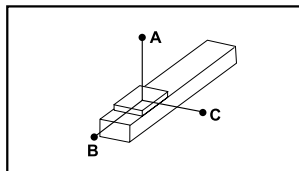
—	No brake
B	With brake

Ball screw lead		Motor position		Flange (For motor installation)		Home sensor		Limit sensor	
L05	5 mm	M	Built-in	M	75 750W servo	In side		In side	
L10	10 mm	BC	Direct connection			A	Motor side	1	1 Pc
L25	25 mm	BM	Lower side			B	Opposite motor side	2	2 Pcs
L40	40 mm	BR	Right side			Out side		Out side	
		BL	Left side	P	Panasonic	C	Motor side	3	1 Pc
						D	Opposite motor side	4	2 Pcs
						No sensor		No sensor	
						E	None	5	None

*1. Motor not included. Please refer to the "Motor Selection Table" for details.

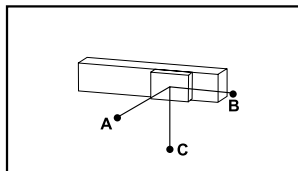
*2. Determination is required only when "Built-in" type is chosen.

Allowable overhang



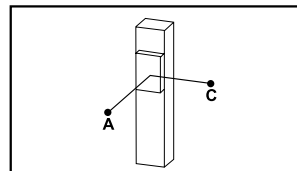
Unit: mm

Horizontal installation		A	B	C
Lead 5	60kg	3672	653	866
	100kg	3000	370	497
	150kg	2493	273	363
Lead 10	60kg	2652	899	994
	100kg	1775	526	593
	150kg	1396	317	267
Lead 25	50kg	2862	956	1191
	80kg	2412	581	773
	120kg	2025	373	556
Lead 40	10kg	4010	4010	3460
	30kg	3011	2003	1911
	60kg	2453	730	980



Unit: mm

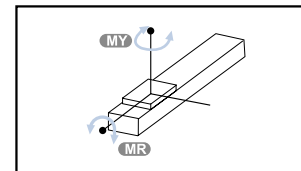
Wall installation		A	B	C
Lead 5	60kg	795	525	3657
	100kg	416	248	2993
	150kg	290	159	2479
Lead 10	60kg	982	815	2573
	100kg	569	442	1680
	150kg	337	232	1258
Lead 25	50kg	1207	879	2862
	80kg	779	504	2412
	120kg	515	295	2025
Lead 40	10kg	3057	4113	4113
	30kg	2112	2108	3387
	60kg	1020	668	2461



Unit: mm

Vertical installation		A	C
Lead 5	30kg	2688	2688
	50kg	1893	1893
	70kg	1640	1640
	70kg	1640	1640
Lead 10	20kg	2297	2297
	30kg	1518	1518
	45kg	999	999
	45kg	999	999
Lead 25	15kg	2767	2767
	20kg	2100	2100
	25kg	1702	1702
	25kg	1702	1702
Lead 40	-	-	-
	-	-	-
	-	-	-

Static loading moment



Unit: N.m

MY	2052
MP	2052
MR	1810

METS-22 Dimensions – Servo motor 750W

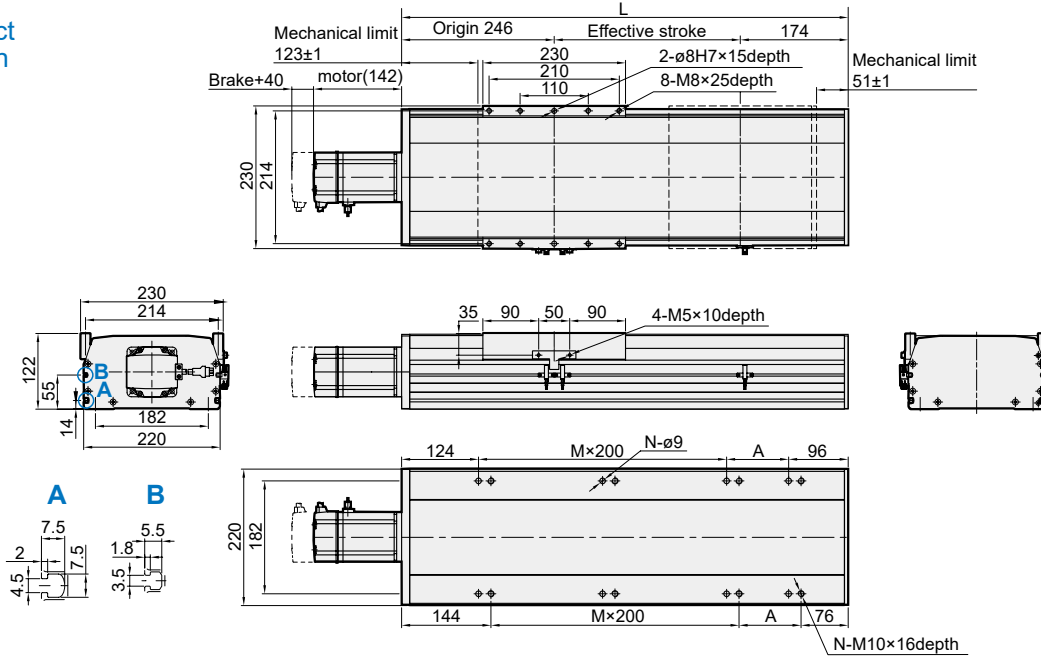


SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)

mindman

BC

Motor direct connection

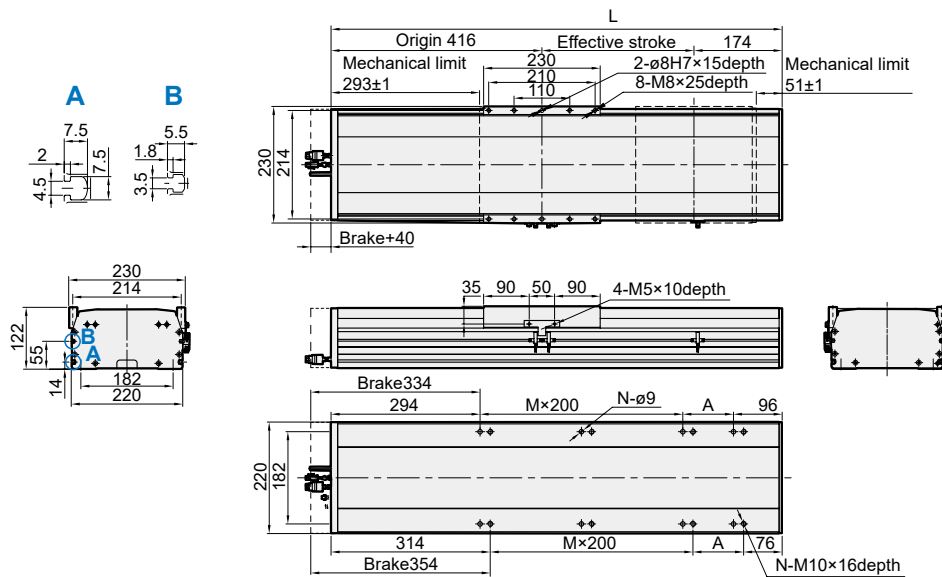


Unit: mm

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

M

Motor built-in



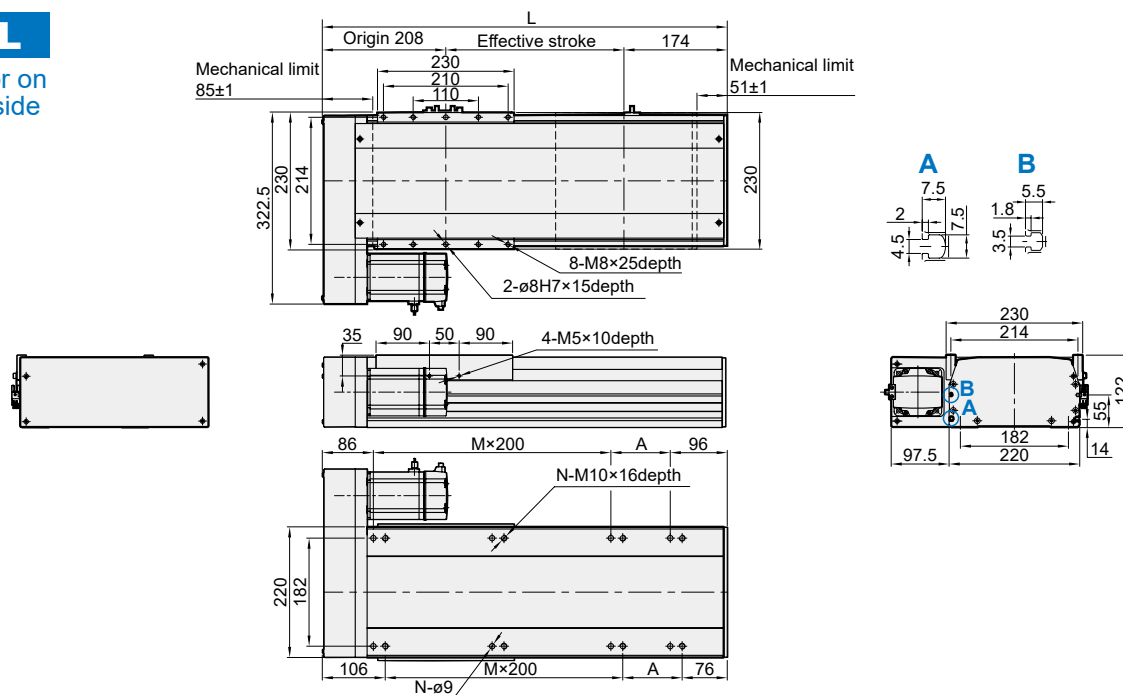
Unit: mm

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

SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)

BL

Motor on
left side

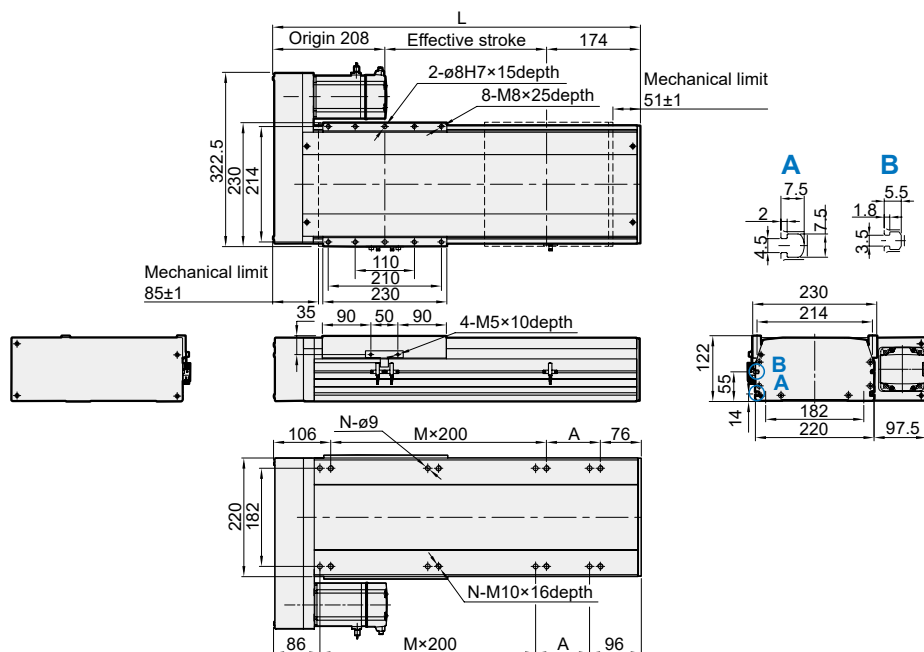


Unit: mm

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	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 on
right side



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	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

METS-22 Dimensions – Servo motor 750W

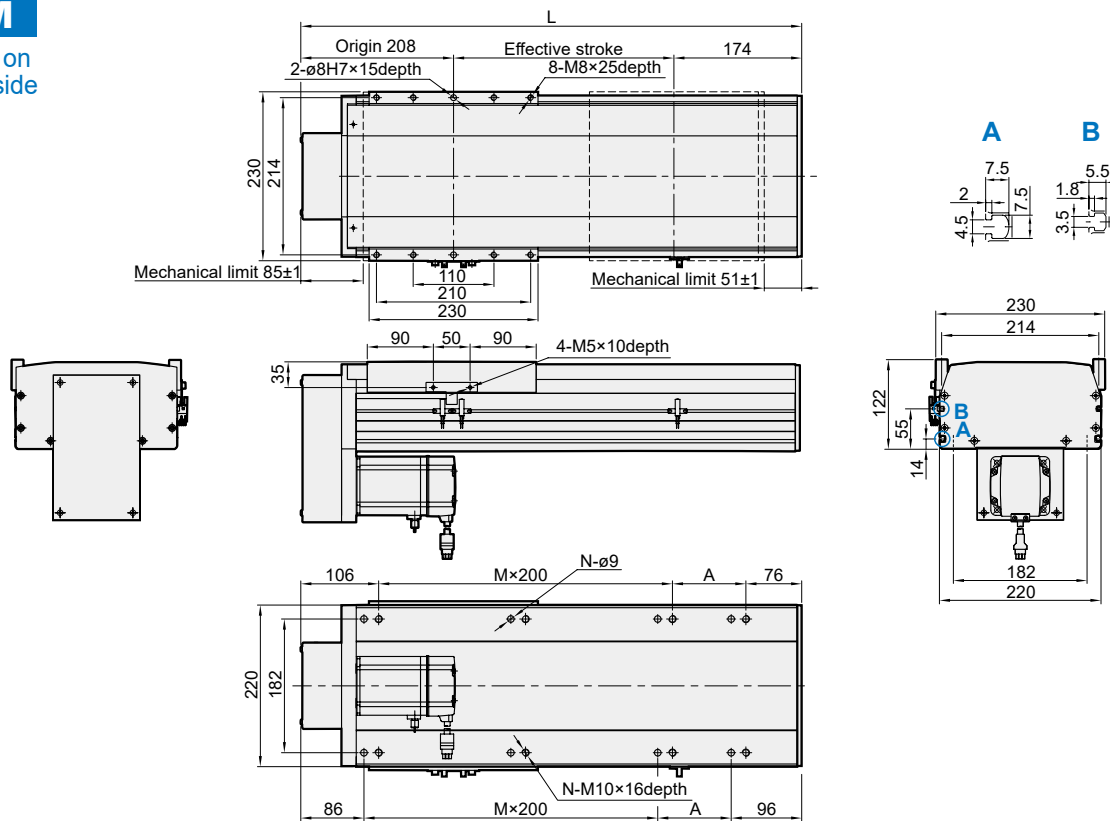
SLIDER ELECTRIC CYLINDER (WITHOUT MOTOR)



mindman

BM

Motor on lower side



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	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



Selection table



Applications



Motor selection



Controller



Feature

- Good repeatability accuracy ± 0.02 .
- Pre-lubricated before shipment.
- Better radial load capacity compared to MEQI.
- Ball screw drive, various strokes and leads available.
- Compatible with external magnetic sensors.

Motor type	Servo / Step	Transmission	Ball screw
Environment	Standard	Guide type	Linear rail

Specification

Model		METI							
Size		32		40			50		
Positioning repeatability	(mm)	±0.02							
Lead *1	(mm)	1	2	5	10	20	5	10	20
Ball screw	(ø)	C7ø8		C7ø12			C7ø16		
Stroke	(mm)	50, 100		50, 100, 150			50, 100, 150		
Anti-rotation tolerance	(°)	±0.4							
Start torque	(N.m)	<0.05	<0.1	<0.05	<0.1	<0.2	<0.2	<0.25	<0.3
Sensor switch		RDC(V), RQC(V) 							
With AC servo motor		(W)		50 (100)			200 (400)		
Max. speed	(mm/s)	50	100	250	500	1000	250	500	1000
Max. axial force	(N)	720 (1600)	360 (800)	140 (320)	70 (160)	35 (80)	680 (1400)	340 (700)	170 (350)
With step motor		□42			□56				
Max. speed	(mm/s)	50	100	250	500	1000	250	500	1000
Max. thrust force at top speed *2	(N)	325	162	65	32	16	110	55	27

*1. Special accuracy and lead is available.

*2. Due to the characteristics of a step motor, thrust force is low at high speed. Lowering the operating speed can further increase the thrust force.

Order example

</

*1. Motor not included. Please refer to the "Motor Selection Table".

*2. For the optional transmission cable (CK10-C035) for controller management.

Life – Axial force relationship chart

The estimated service life under an axial load of F is shown in the plot. The environmental condition is 25°C, and a safety factor of 1.5 is used for both the ball screw and ball bearing.

Life – Moment relationship chart

The estimated service life under a moment load of M is shown in the plot. The value of M uses the max value of the application. The environmental condition is 25°C, and a safety factor of 1.5 is used for the linear rail.

Service life determination

The service life of the product is determined by the lowest value from the two service life charts above.

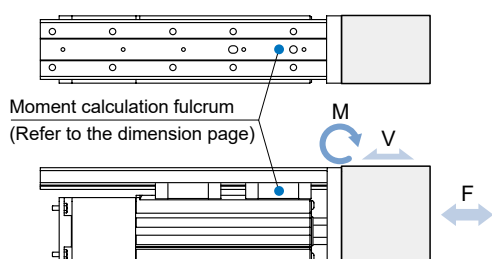
* It is recommended to check the shaft for lubrication replenishment every 100 km of operation.

Motor output chart

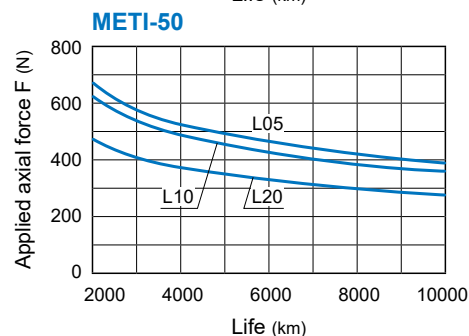
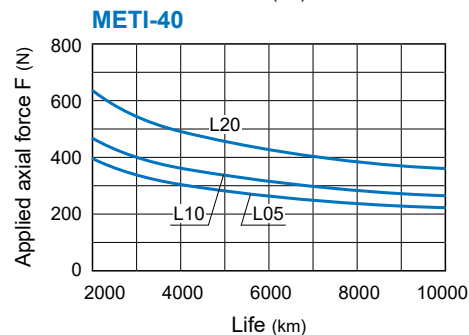
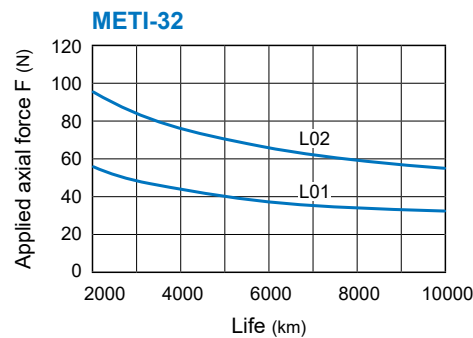
The relationship between axial output force and motor spindle speed is depicted in the plot. The default gear ratio is 1:1.

Speed chart

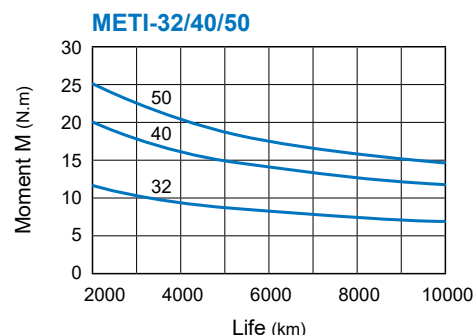
The relationship between axial velocity and motor spindle speed is depicted in the plot. The default gear ratio is 1:1.



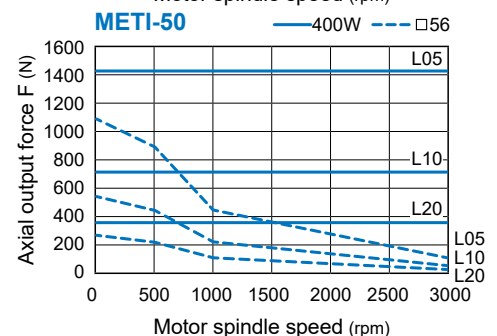
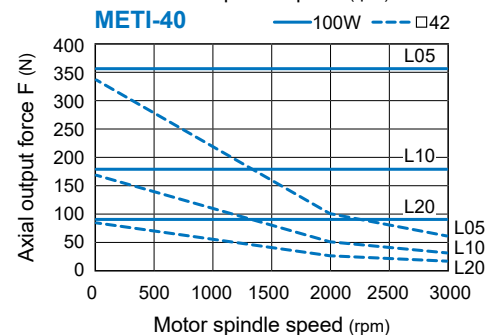
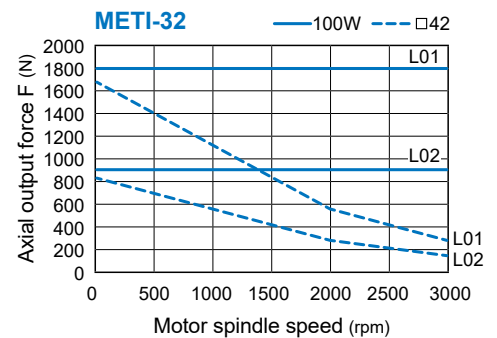
Life – Applied axial force relationship chart



Life – Moment relationship chart



Motor spindle speed – Axial output force relationship chart



Motor spindle speed – Axial velocity relationship chart

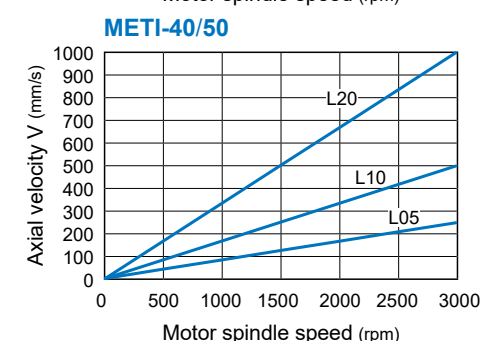
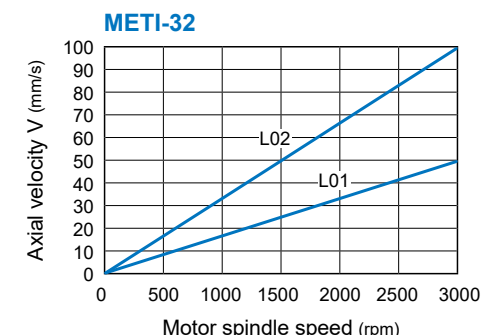
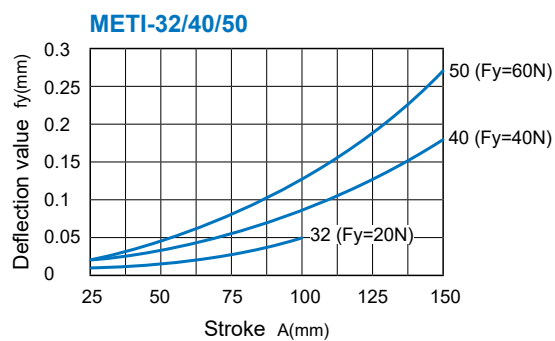
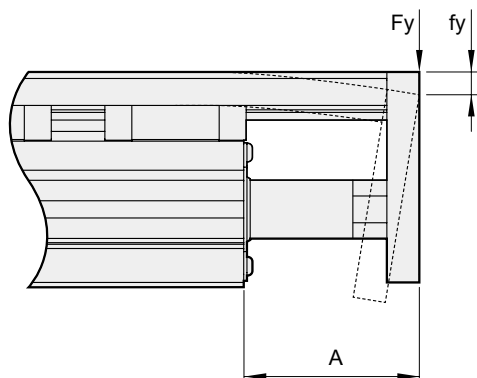
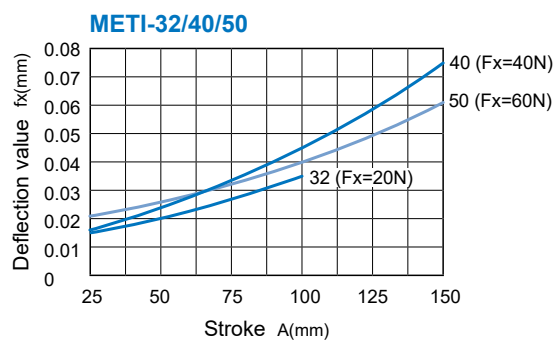
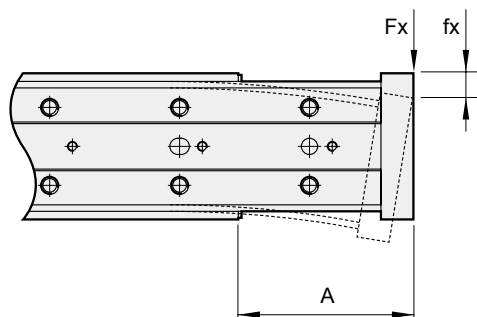


Table bending deflection

Vertical deflection

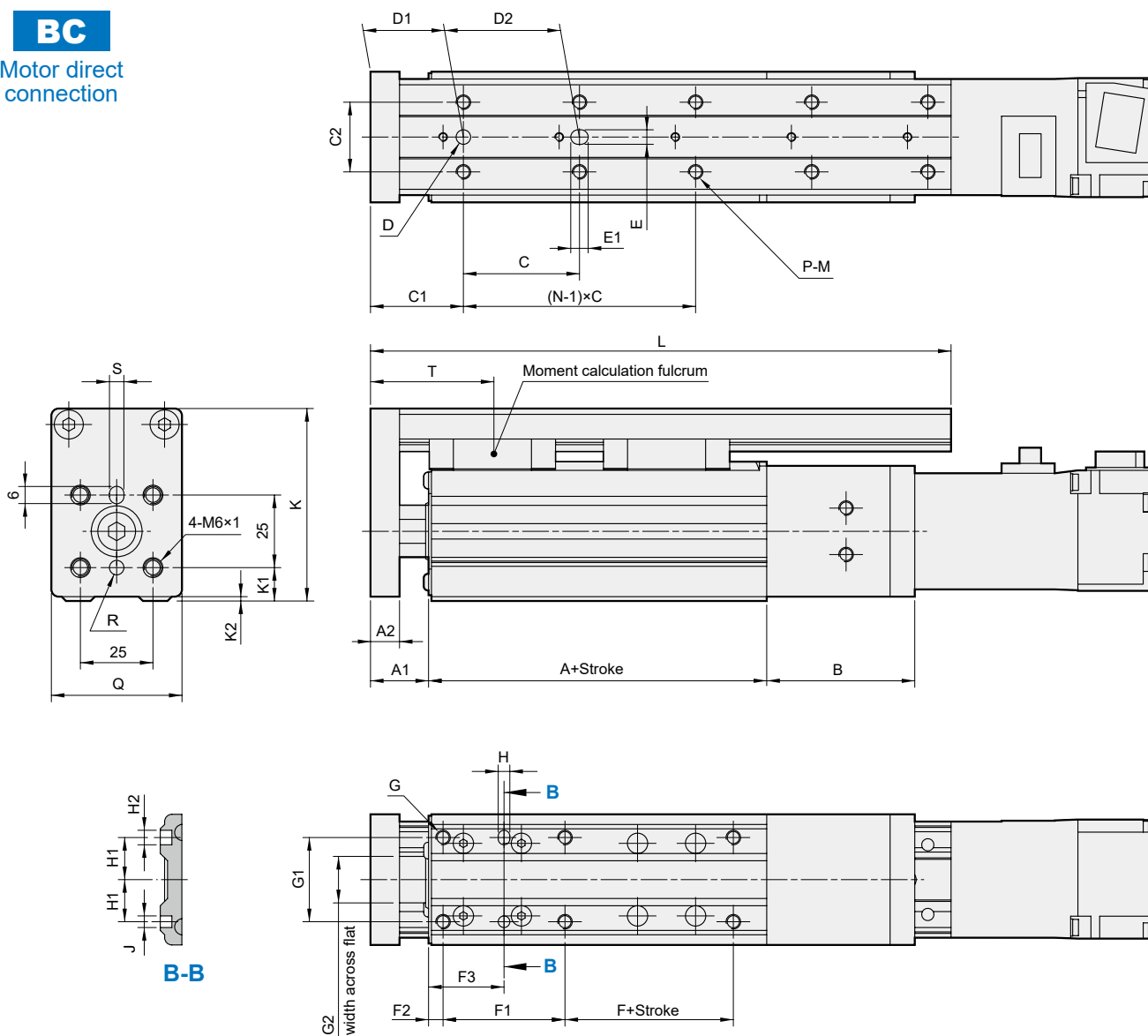


Horizontal deflection



BC

Motor direct connection



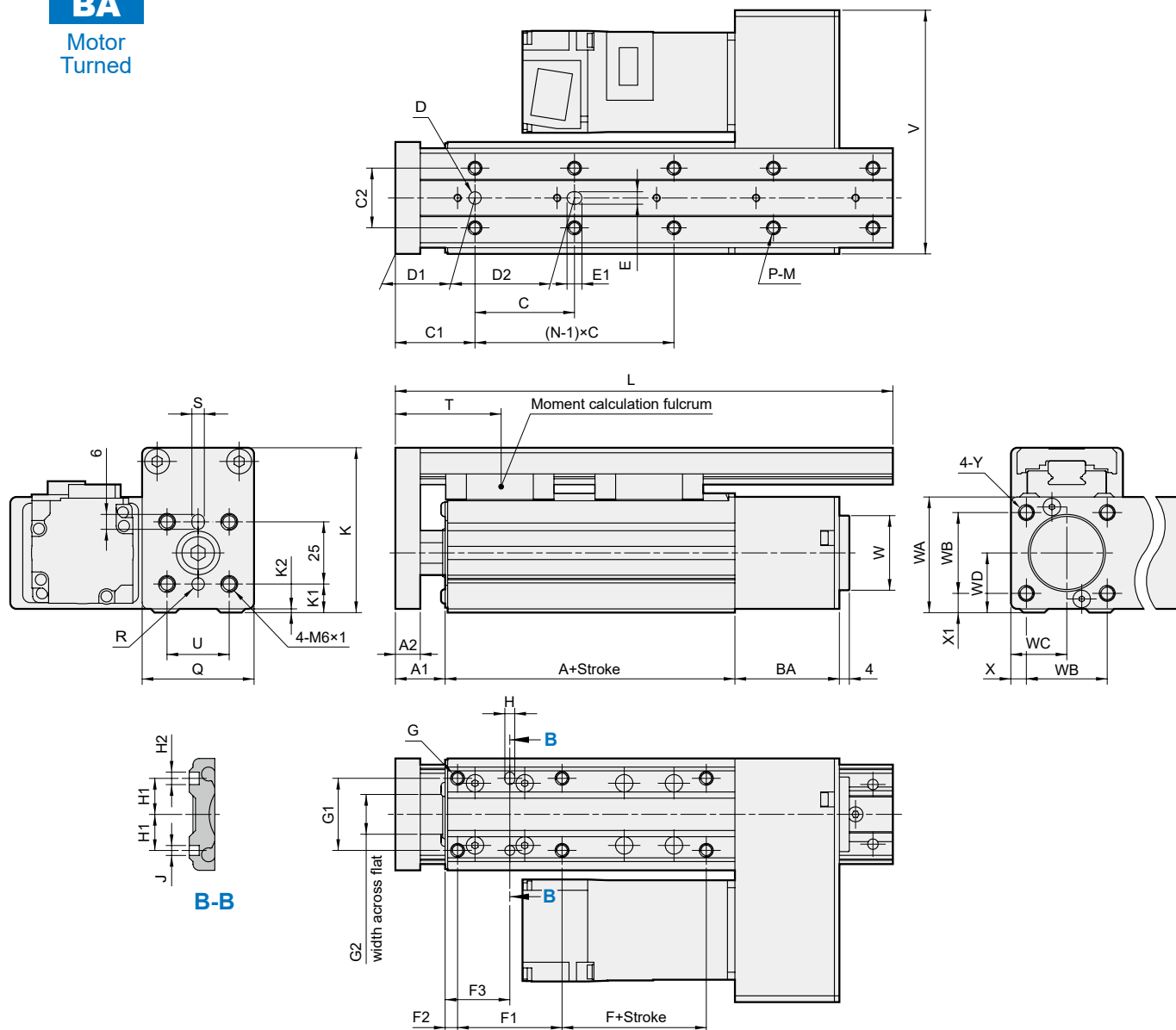
Code Spec.	A	A1	A2	B	C	C1	C2	D	D1	D2	E	E1	F	F1	F2	F3	G
32	66.5	20	10	51	40	32	24	$\varnothing 5^{+0.03}_0 \times 3.5$ dp	32	40	$5^{+0.03}_0 \times 3.5$ dp	6	8	42	5	26	6-M5×0.8×5 dp
40	110	20	11	46.5	60	26	30	$\varnothing 5^{+0.03}_0 \times 3.5$ dp	26	30	$5^{+0.03}_0 \times 3$ dp	6	10	40	20	40	6-M5×0.8×7 dp
50	127	22	15	59.5	75	43	36	$\varnothing 6^{+0.03}_0 \times 4$ dp	53	75	$6^{+0.03}_0 \times 4$ dp	7	18	36	20	38	6-M6×1×8.5 dp

Code Spec.	G1	G2	H	H1	H2	J	K	K1	K2	M	Q	R	S	T
32	29	16	$4^{+0.03}_0 \times 4$ dp	14.5	5	$\varnothing 4^{+0.03}_0 \times 4$ dp	66.3	11.5	1.5	M5×0.8×6 dp	45	$\varnothing 5^{+0.03}_0 \times 5$ dp	$5^{+0.03}_0 \times 5$ dp	42
40	34	16	$4^{+0.03}_0 \times 5$ dp	17	5	$\varnothing 4^{+0.03}_0 \times 4$ dp	71	15	1.5	M5×0.8×6 dp	53	$\varnothing 5^{+0.03}_0 \times 5$ dp	$5^{+0.03}_0 \times 5$ dp	41
50	38	21	$5^{+0.03}_0 \times 4$ dp	19	6	$\varnothing 5^{+0.03}_0 \times 4$ dp	81.5	19	1.5	M6×1.0×6 dp	64	$\varnothing 5^{+0.03}_0 \times 5$ dp	$5^{+0.03}_0 \times 5$ dp	60

Code Stroke Spec.	L			N			P		
	50	100	150	50	100	150	50	100	150
32	200	240	—	5	6	—	10	12	—
40	191	251	301	3	4	5	6	8	10
50	225	265	345	3	3	4	6	6	8

BA

Motor
Turned



* Belt installation tension: 60 N

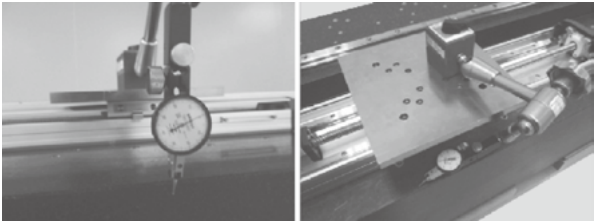
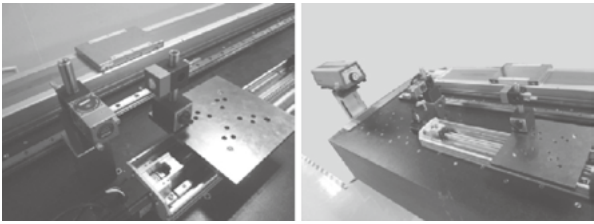
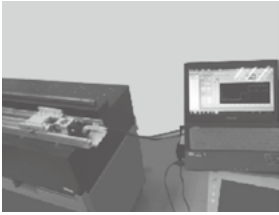
Code Spec.	A	A1	A2	BA	C	C1	C2	D	D1	D2	E	E1	F	F1	F2	F3	G
32	66.5	20	10	42	40	32	24	$\varnothing 5^{+0.03}_{-0} \times 3.5$ dp	32	40	$5^{+0.03}_{-0} \times 3.5$ dp	6	8	42	5	26	6-M5×0.8×5 dp
40	110	20	11	39	60	26	30	$\varnothing 5^{+0.03}_{-0} \times 3.5$ dp	26	30	$5^{+0.03}_{-0} \times 3$ dp	6	10	40	20	40	6-M5×0.8×7 dp
50	127	22	15	50	75	43	36	$\varnothing 6^{+0.03}_{-0} \times 4$ dp	53	75	$6^{+0.03}_{-0} \times 4$ dp	7	18	36	20	38	6-M6×1×8.5 dp

Code Spec.	G1	G2	H	H1	H2	J	K	K1	K2	M	Q	R	S	T	U
32	29	16	$4^{+0.03}_{-0} \times 4$ dp	14.5	5	$\varnothing 4^{+0.03}_{-0} \times 4$ dp	66.3	11.5	1.5	M5×0.8×6 dp	45	$\varnothing 5^{+0.03}_{-0} \times 5$ dp	$5^{+0.03}_{-0} \times 5$ dp	42	25
40	34	16	$4^{+0.03}_{-0} \times 5$ dp	17	5	$\varnothing 4^{+0.03}_{-0} \times 4$ dp	71	15	1.5	M5×0.8×6 dp	53	$\varnothing 5^{+0.03}_{-0} \times 5$ dp	$5^{+0.03}_{-0} \times 5$ dp	41	25
50	38	21	$5^{+0.03}_{-0} \times 4$ dp	19	6	$\varnothing 5^{+0.03}_{-0} \times 4$ dp	81.5	19	1.5	M6×1.0×6 dp	64	$\varnothing 5^{+0.03}_{-0} \times 5$ dp	$5^{+0.03}_{-0} \times 5$ dp	60	40

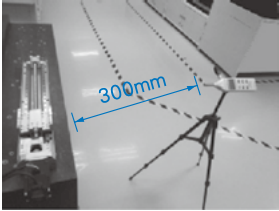
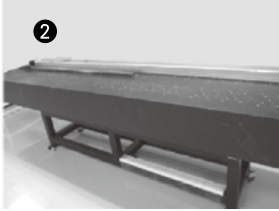
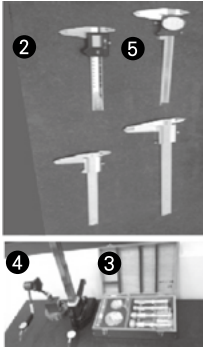
Code Spec.	V	W	WA	WB	WC	WD	X	X1	Y
32	98	$\varnothing 30$ d11 $^{-0.06}_{-0.19}$	46.5	32.5	22.5	24	6.25	7.75	M6×1.0×16 dp
40	107	$\varnothing 35$ d11 $^{-0.08}_{-0.24}$	53	38	26.5	27.5	7.5	8.5	M6×1.0×17 dp
50	142	$\varnothing 40$ d11 $^{-0.08}_{-0.24}$	62.5	46.5	32	31.5	8.75	8.25	M8×1.0×18 dp

Code Stroke Spec.	L			N			P		
	50	100	150	50	100	150	50	100	150
32	200	240	—	5	6	—	10	12	—
40	191	251	301	3	4	5	6	8	10
50	225	265	345	3	3	4	6	6	8

Measuring tools

		1. Parallelism testing / Height testing	
		Measuring tools	Dial gauge and 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 recorder.
		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 slide to 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
		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.

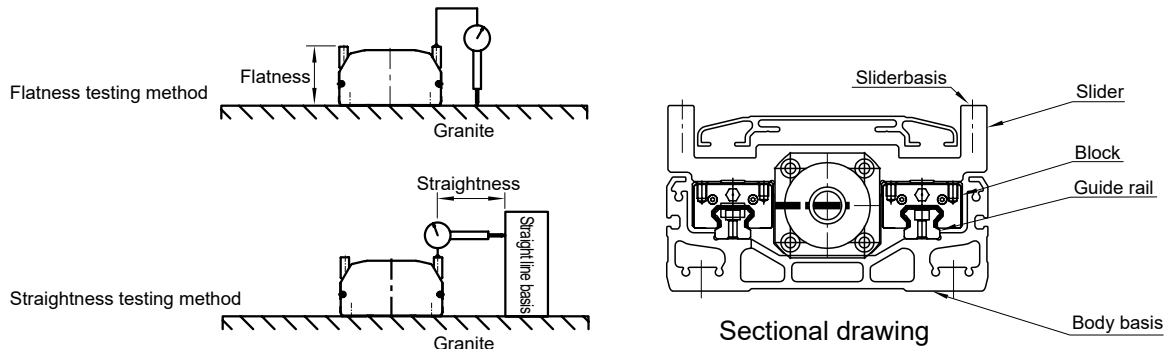
Measuring tools

	6.Belt tension testing <table> <tr> <td>Measuring tools</td><td>Pull tension gauge</td></tr> <tr> <td>Measuring methods</td><td> 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. </td></tr> </table>	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.
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 <table> <tr> <td>Measuring tools</td><td>Decibel meter</td></tr> <tr> <td>Measuring methods</td><td> 1. Fix the actuator on granite. 2. Decibel meter put at the distance of 300mm. 3. Use motor to drive actuator in high speed. 4. As photo display. 5. Record it on shipping testing report. </td></tr> </table>	Measuring tools	Decibel meter	Measuring methods	1. Fix the actuator on granite. 2. Decibel meter put at the distance of 300mm. 3. Use motor to drive actuator in high speed. 4. As photo display. 5. Record it on shipping testing report.
Measuring tools	Decibel meter				
Measuring methods	1. Fix the actuator on granite. 2. Decibel meter put at the distance of 300mm. 3. Use motor to drive actuator in high speed. 4. As photo display. 5. Record it on shipping testing report.				
 	8.Measuring tool- Granite platform <table> <tr> <td>Granite specifications</td><td> 1. Size 1295mm*600mm*140mm 2. Size 4020mm*800mm*300mm </td></tr> </table>	Granite specifications	1. Size 1295mm*600mm*140mm 2. Size 4020mm*800mm*300mm		
Granite specifications	1. Size 1295mm*600mm*140mm 2. Size 4020mm*800mm*300mm				
 	9.Material tools <table> <tr> <td>Measuring tools</td><td> 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. </td></tr> <tr> <td>Measuring tools calibration standards</td><td> Block gauge, ring gauge (regularly qualified) QC Room 1. Control temperature and humidity to keep the stability of the measurement. 2. Measuring tools calibrate regularly. </td></tr> </table>	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 1. Control temperature and humidity to keep the stability of the measurement. 2. Measuring tools calibrate regularly.
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 1. Control temperature and humidity to keep the stability of the measurement. 2. Measuring tools calibrate regularly.				

Flatness and straightness standard

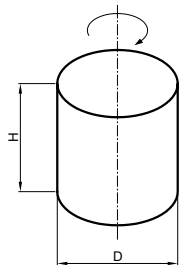
Flatness standard=The parallelism of body basis and slider basis is less then 0.05mm/M

Straightness standard=The parallelism of slider basis and straight line basis is less then 0.05mm/M



Equation of moment of inertia calculation

Usually the load is not simple form, and the calculation of the moment of inertia is not easy. As a method, load is replaced with several factors that resemble a simple form for which the moment of inertia can be calculated. The total of the moment of inertia for these factors is the obtained. The objects and equations often used for the calculation of the moment of inertia are shown below.

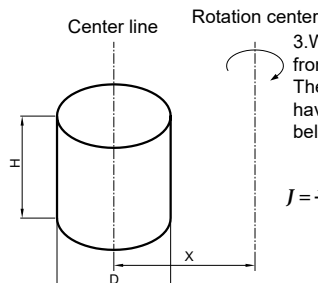


1.Moment of inertia for cylinder
The moment of inertia(J) for a cylinder having a rotation center such as shown below is given by

$$J = \frac{P\pi D^4 h}{32 \times 980} = \frac{WD^2}{8g} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{mD^2}{8} \text{ (Kgm}^2\text{)}$$

P = Density (kg/cm³)
g = Gravitational acceleration (cm/sec²)
W =Weight of cylinder (kgf)
m = Mass of cylinder (kg)

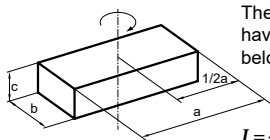


3.When the object's center line is offset from the rotation center
The moment of inertia(J) for a cylinder having a rotation center such as shown below is given by

$$J = \frac{P\pi D^4 h}{32} + \frac{P\pi D^4 h}{4} = \frac{WD^2}{8g} + \frac{WX^2}{G} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{mD^2}{8} + mX^2 \text{ (Kgm}^2\text{)}$$

P = Density (kg/cm³)
g = Gravitational acceleration (cm/sec²)
W =Weight of cylinder (kgf)
m = Mass of cylinder (kg)

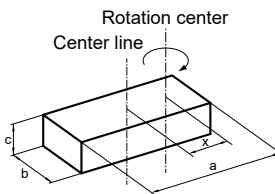


2.Moment of inertia for rectangular parallelepiped
The moment of inertia(J) for a cylinder having a rotation center such as shown below is given by

$$J = \frac{Pabc(a^2+b^2)}{12} = \frac{W(a^2+b^2)}{12g} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{M(a^2+b^2)}{12} \text{ (Kgm}^2\text{)}$$

P = Density (kg/cm³)
g = Gravitational acceleration (cm/sec²)
W =Weight of cylinder (kgf)
m = Mass of cylinder (kg)



$$J = \frac{Pabc(a^2+b^2)}{12} + \frac{PabcX^2}{G}$$

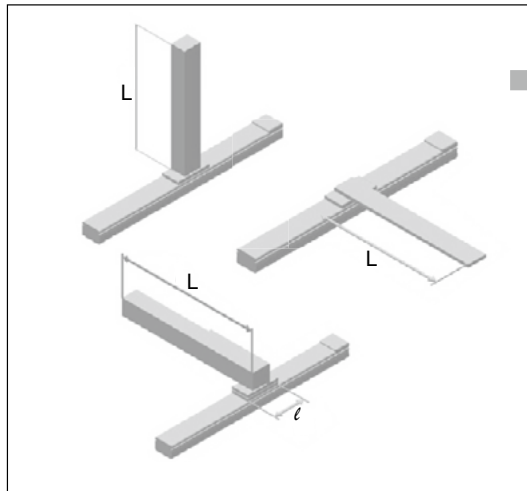
$$= \frac{W(a^2+b^2)}{12g} + \frac{WX^2}{G} \text{ (kgf} \cdot \text{cm} \cdot \text{sec}^2\text{)}$$

$$= \frac{M(a^2+b^2)}{12} + mX^2 \text{ (Kgm}^2\text{)}$$

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 setting 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.

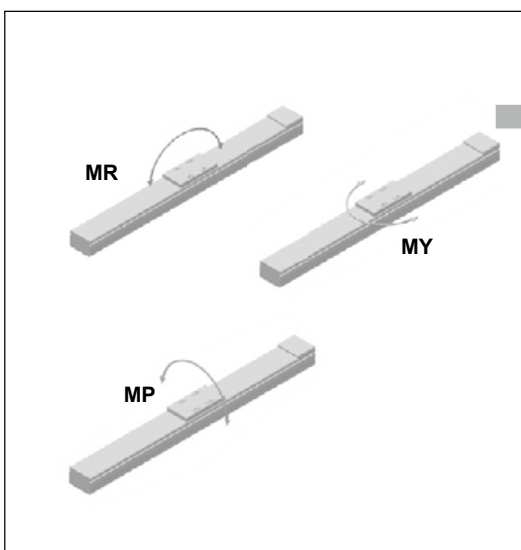
An overhang that exceeds the allowable overhang length will generate vibration and increase settling time.

$L/l = 5$ Within
* Between 3 to 4 for a camera equipped measuring machine.

- For example
 $L/l = 1.2$ Mechanical machine
 $L/l = 3$ Mechanical 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 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.



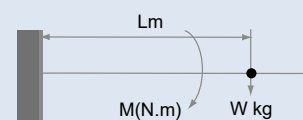
The allowable dynamic moment is calculated from the service life of the guide.

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.



Lead accuracy

PMI's precision ground ball screws are controlled in accordance with JIS B 1192. The permissible values and each part of definitions are shown below.

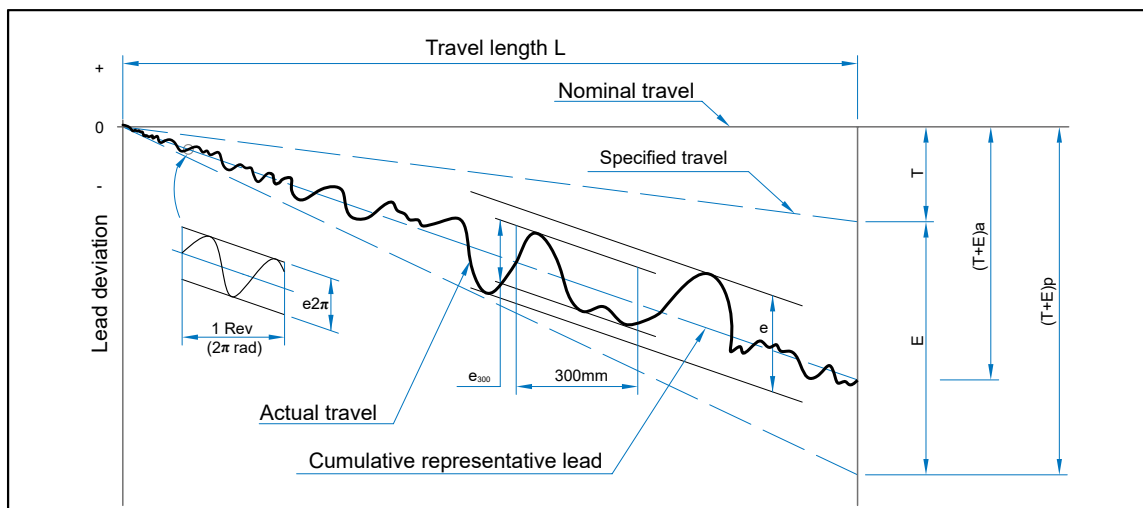


Fig.1 Technical terms concerning the lead

■ Table 1 Terms

T+E	Cumulative representative lead	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.
P		Permissible value.
a		Actual value.
T	Specified travel specify the target value	Specified travel. This value is determined by customer and maker as it depends on different application requirements.
E	Cumulative representative lead error	Accumulated reference lead deviation. This is allowable deviation of specified travel. It is decided by both of the accuracy grade and effective thread length.
e	Change	Total relative lead variation maximum width of variation over the travel length.
e₃₀₀		Lead deviation in random 300 mm.
e_{2π}		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)	Grade	C0		C1		C2		C3		C4		C5		C6	C7	C8
	Over up to	E	e	E	e	E	e	E	e	E	e	E	e	± 0.025	± 0.050	± 0.120
	315	4	3.5	6	5	5	7	12	8	12	12	23	18	300mm	300mm	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 ($e_{2\pi}$)

α_{522}

Grade	C0	C1	C2	C3	C4	C5	C6	C7	C10
JIS	3.5	5		8		18		50	210
PMI	3.5	5	7	8	12	18	25	50	210

$\alpha_{4\pi}$

Grade	C0	C1	C2	C3	C4	C5
JIS	3	4		6		8
PMI	3	4	4	6	8	8

MEQG-5 series

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



Mindman



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection



Specification

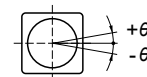
Model		MEQG-5			
Positioning repeatability	(mm)	±0.01			
Ball screw lead	(mm)	2	5	10	20
Maximum speed (*1)	(mm/s)	100	250	500	1000
Rated load (*2)	Horizontal	(kg)	30	30	15
	Vertical	(kg)	10	10	5
Max. thrust	(N)	854	341	170	85
Stroke / pitch	(mm)	50~600 / 50 Pitch			
Motor output	(W)	100			
Ball screw spec	(mm)	C7ø12			
Coupling	(mm)	7×8			
Home sensor (Outside)		CS-6T (NPN)			
Anti-rotating accuracy (*3) (θ)		±0°			

*1. Acceleration and deceleration values are set to 0.2 second.

*2. If the load is near maximum, external guideway for radial load is required.

*3. Please avoid applying axial torque on the anti-rotating guide.

Anti-rotating accuracy of rod



Order example

MEQG-5 — L05 — 100 — BC — M10 — C4

Model

Size

Stroke

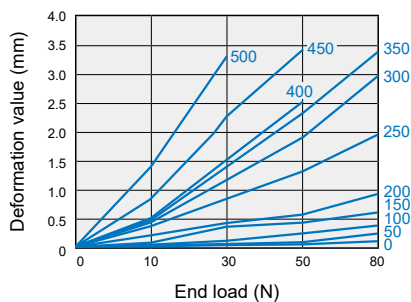
50~600 mm
50 mm pitch

Ball screw lead		Motor position		Flange (For motor installation)		Home sensor		Limit sensor	
L02	2 mm	BC	Direct connection	Applicable motor brand (*)		Out side		Out side	
L05	5 mm	BM	Lower side	M	Mitsubishi	C	Motor side	3	1 Pc
L10	10 mm	BR	Right side		Yaskawa	D	Opposite motor side	4	2 Pcs
L20	20 mm	BL	Left side		Delta	No sensor		No sensor	
				P	Panasonic	E	None	5	None

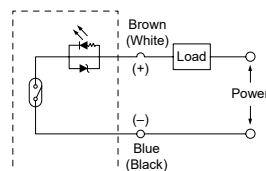
* Motor not included. Please refer to the "Motor Selection Table".

Shaft output deformation value

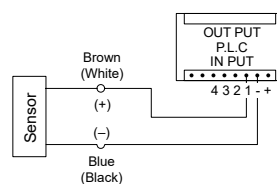
This form is only reference values.



Sensor layout



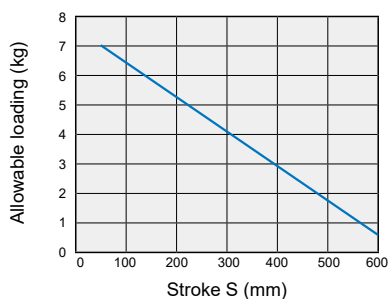
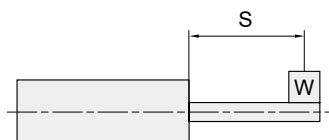
General load:
Such as relay or other
resistive load.



Programmable controller
connection diagram.

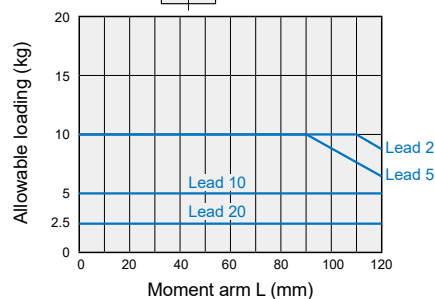
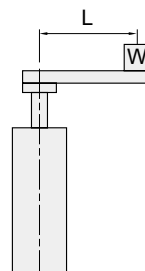
Allowable installation load

No external auxiliary mechanism, extension distance of load = 0



Load in vertical installation

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



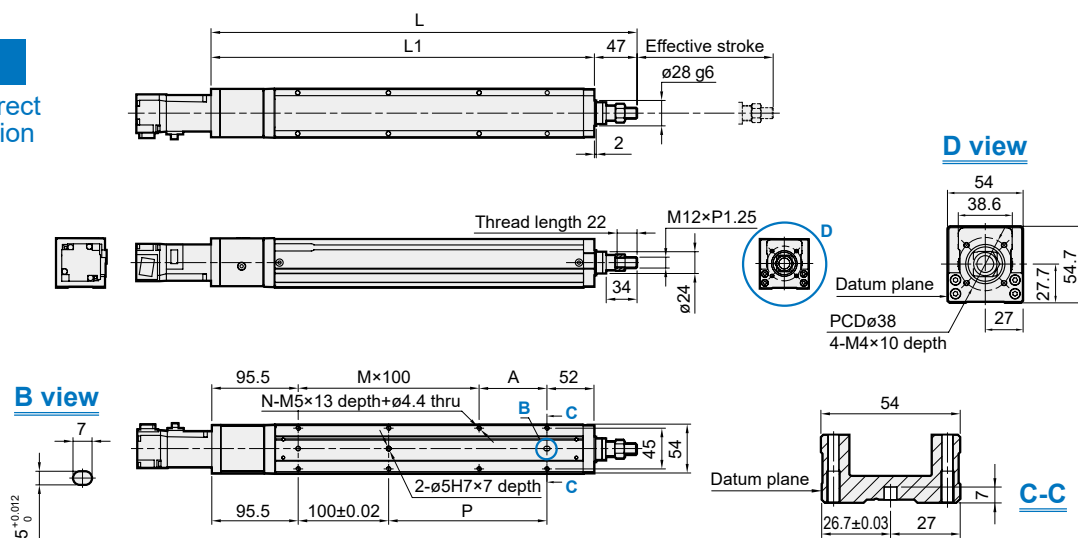
MEQG-5 Dimensions

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



BC

Motor direct connection

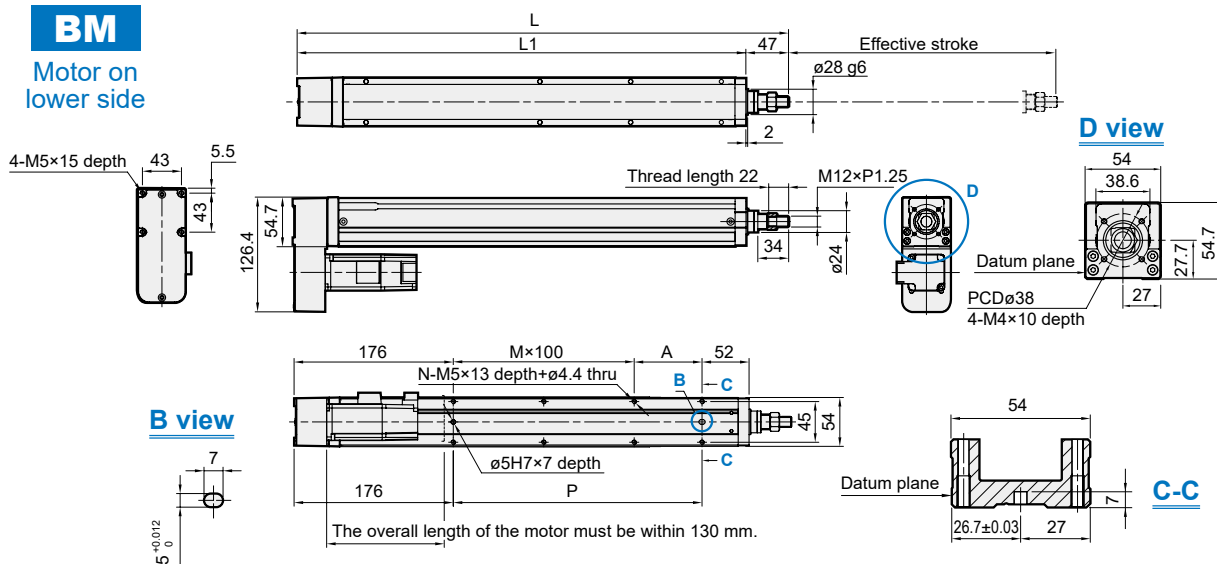


Unit: mm

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 on lower side



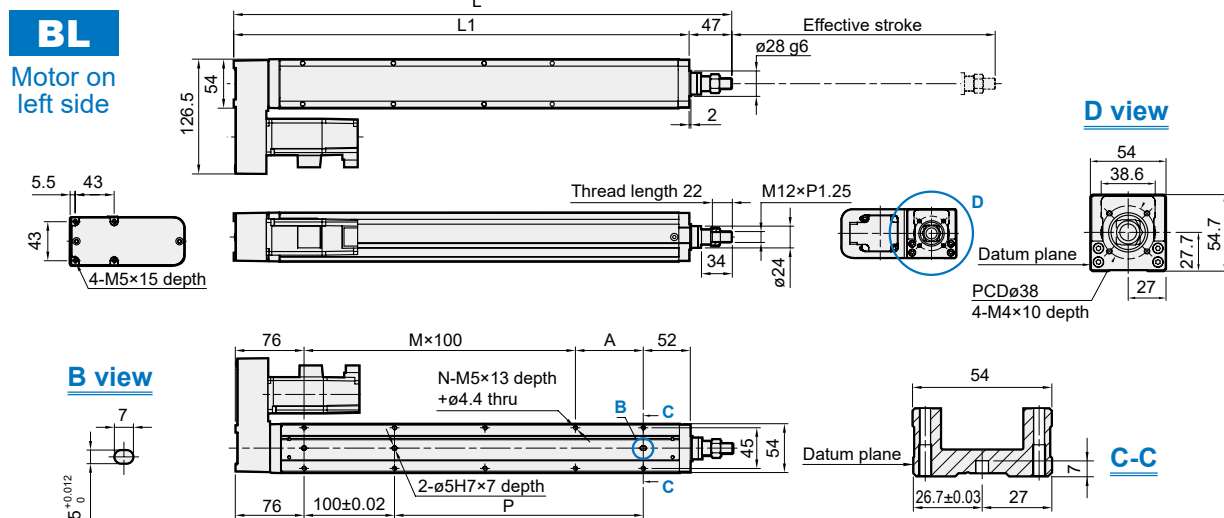
Unit: mm

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 motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pinhole. Please contact us if you need more information and requirement.

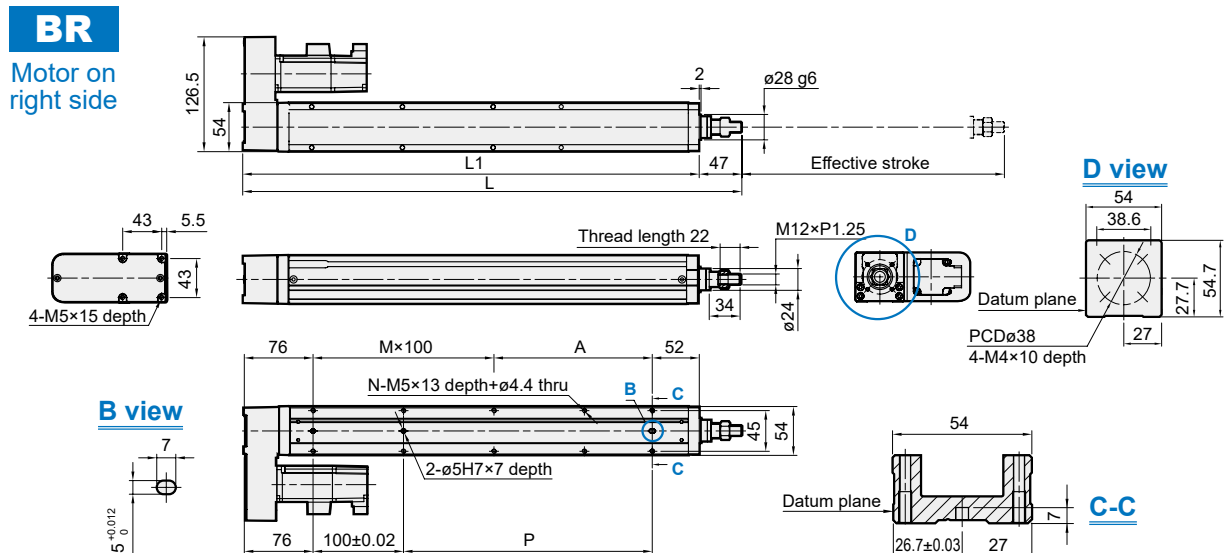
MEQG-5 Dimensions

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



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



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

MEQG-8 series

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



Mindman



Selection table



Applications



Inner structure



Measuring tools



Reference data



Motor selection



Specification

Model		MEQG-8		
Positioning repeatability	(mm)	±0.01		
Ball screw lead	(mm)	5	10	20
Maximum speed (*1)	(mm/s)	250	500	1000
Rated load (*2)	Horizontal	(kg)	50	30
	Vertical	(kg)	15	8
Max. thrust (*3)	(N)	683 (1388)	341 (694)	174 (347)
Stroke / pitch (*4)	(mm)	50~800 / 50 Pitch		
Motor output	(W)	200, 400		
Ball screw spec.	(mm)	C7ø16		
Coupling	(mm)	10×14/11(*6)		
Home sensor (Outside)		CS-6T (NPN)		
Anti-rotating accuracy (*5)	(°)	±0°		

*1.Acceleration and deceleration values are set to 0.2 second.

*2.If the load is near maximum, external guideway for radial load is required.

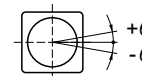
*3.() Value for 400W motor.

*4.Reduce the speed when the stroke exceeds 750 mm due to resonance.

*5.Please avoid applying axial torque on the anti-rotating guide.

*6. Motor 200W shaft diameter: Panasonic: 11mm,
Other: 14 mm.

Anti-rotating
accuracy of rod



Order example

MEQG-8 — L10 — 100 — BC — M20 — C4

Model

Size

Stroke

50~800 mm
50 mm pitch

Ball screw lead

L05	5 mm
L10	10 mm
L20	20 mm

Motor position

BC	Direct connection
BM	Lower side
BR	Right side
BL	Left side

Flange (For motor installation)

Applicable motor brand (*)		Dimensions	
M	Mitsubishi	20 40	200W 400W servo
	Yaskawa		
	Delta		
P	Panasonic		

Home sensor

Out side	
C	Motor side
D	Opposite motor side
No sensor	
E	None

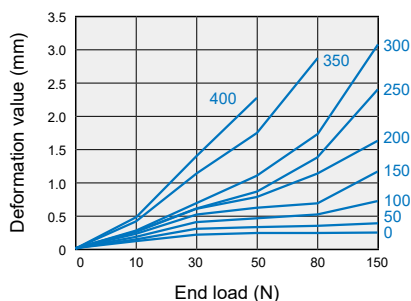
Limit sensor

Out side	
3	1 Pc
4	2 Pcs
No sensor	
5	None

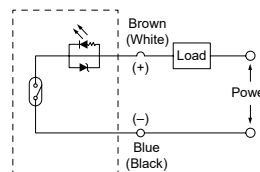
* Motor not included. Please refer to the "Motor Selection Table".

Shaft output deformation value

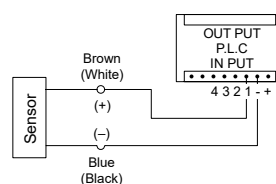
This form is only reference values.



Sensor layout



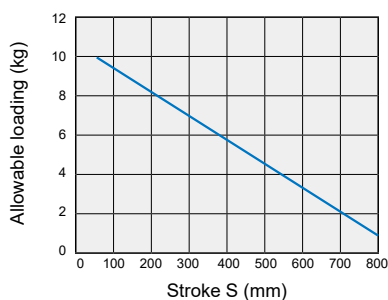
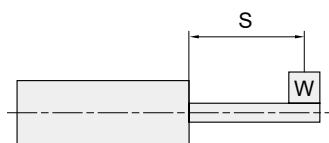
General load:
Such as relay or other
resistive load.



Programmable controller
connection diagram.

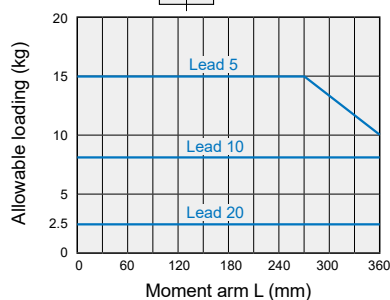
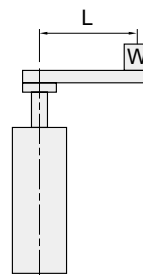
Allowable installation load

No external auxiliary mechanism, extension distance of load = 0



Load in vertical installation

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



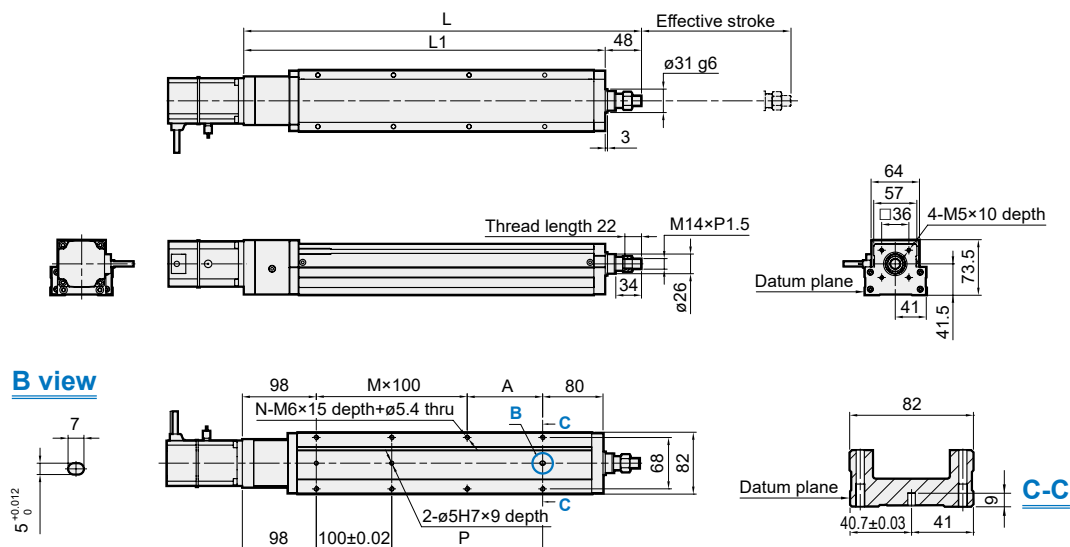
MEQG-8 Dimensions

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



BC

Motor direct connection

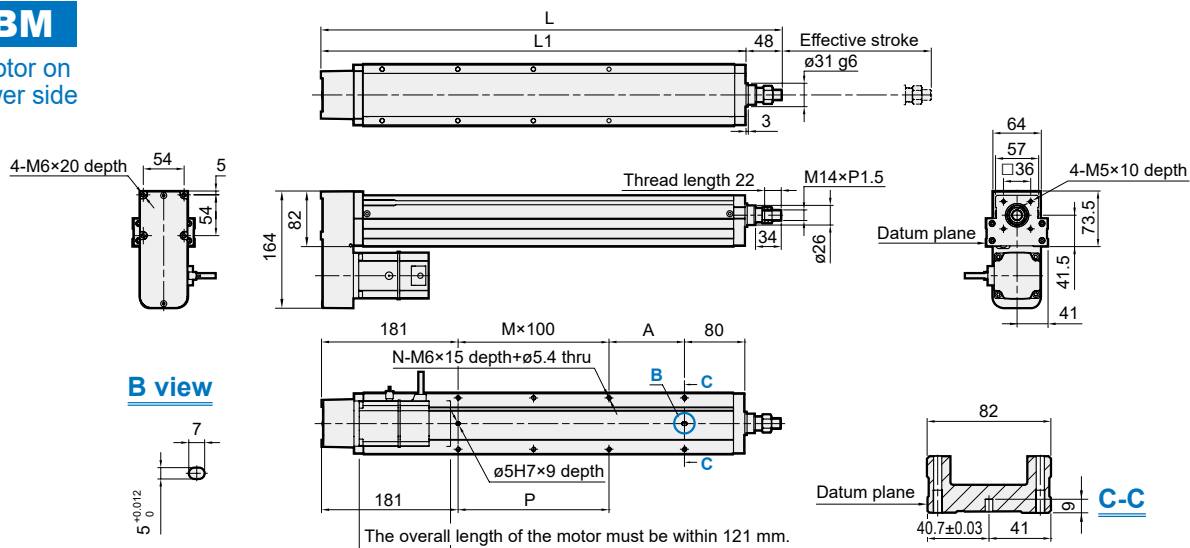


Unit: mm

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	775	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 on lower side



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	775	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 motor with brake assembled on lower side, or the total length over than spec limit, it may not use standard pinhole. Please contact us if you need more information and requirement.

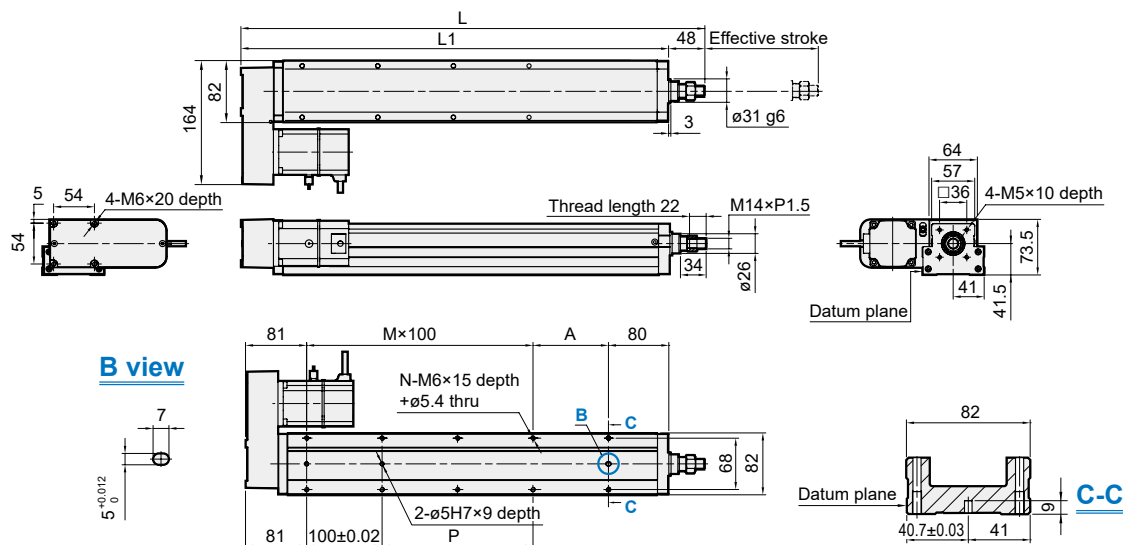
MEQG-8 Dimensions

ROD TYPE ELECTRIC CYLINDER (WITHOUT MOTOR)



BL

Motor on left side

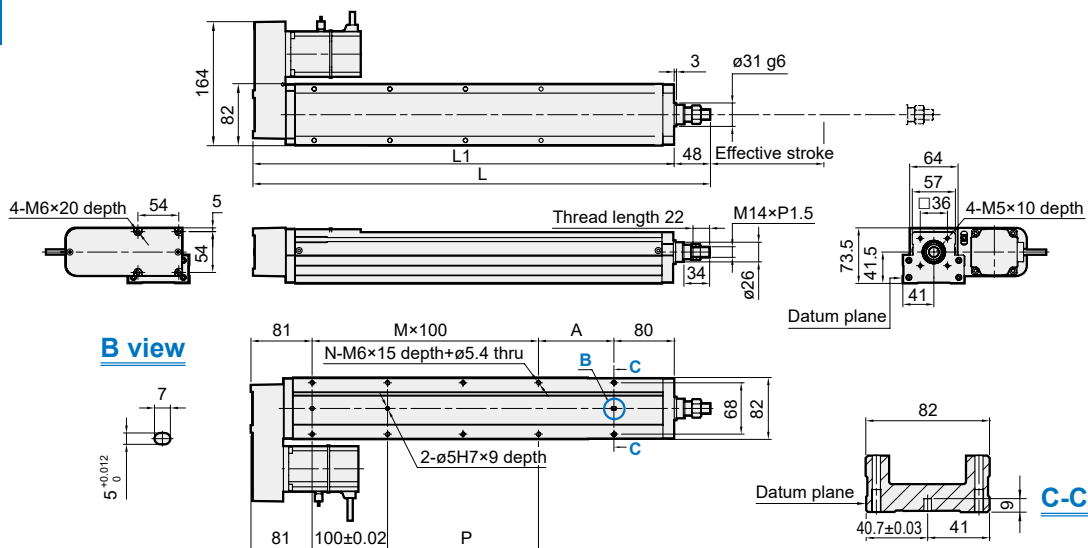


Unit: mm

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	775	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 on right side



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	775	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



Selector table



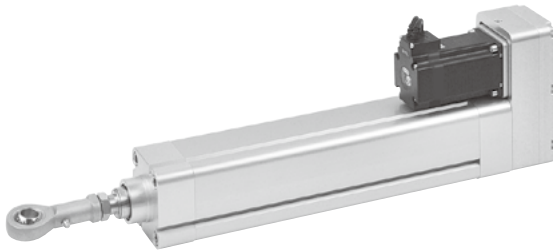
Applications



Motor selection



Controller



Feature

- Good repeatability accuracy ± 0.02 .
- Pre-lubricated before shipment.
- ISO 15552 standard specifications, various mounting fixtures available.
- Ball screw drive, various strokes and leads available.
- Compatible with external magnetic sensors.

Motor type	Servo / Step	Transmission	Ball screw
Environment	Standard	Guide type	Slide guide

Specification

Model	MEQI															
Size	32		40			50			63			80				
Positioning repeatability (mm)	±0.02															
Lead *1 (mm)	1	2	5	10	20	5	10	20	5	10	20	5	10	20	32	
Ball screw (ø)	C7ø8		C7ø12			C7ø16			C7ø20			C7ø32				
Stroke (mm)	100~400		100~600			100~800			100~1000							
Anti-rotation tolerance (°)	±0.4															
Start torque (N.m)	<0.05	<0.1	<0.05	<0.1	<0.2	<0.2	<0.25	<0.3	<0.3	<0.35	<0.4	<0.3	<0.35	<0.4	<0.45	
Sensor switch	RDC(V), RQC(V) 															

With AC servo motor	(W)	50 (100)					200 (400)					750				
Max. speed	(mm/s)	50	100	250	500	1000	250	500	1000	250	500	1000	125	250	500	800
Max. axial force	(N)	720 (1600)	360 (800)	140 (320)	70 (160)	35 (80)	680 (1400)	340 (700)	170 (350)	680 (1400)	340 (700)	170 (350)	2700	1350	675	420
Rated axial load *2	(kg)	3.3	5.5	23	27	37	38.5	35.5	27	50.5	64	37	66	110	90	62

With step motor	□42					□56					
Max. speed (mm/s)	50	100	250	500	1000	250	500	1000	250	500	1000
Max. thrust force at top speed *3 (N)	325	162	65	32	16	110	55	27	110	55	27

*1. Special accuracy and lead are available.

*2. The rated load refers to a 10,000 km estimated service life. Please refer to page "Capacity" for information on other load conditions.

*3. Due to the characteristics of a step motor, thrust force is low at high speed. Lowering the operating speed can further increase the thrust force.

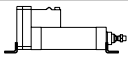
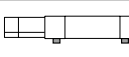
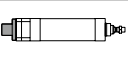
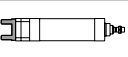
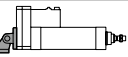
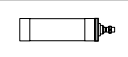
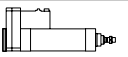
Order example

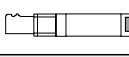
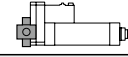
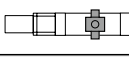
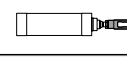
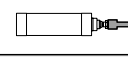
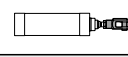
Order example					Electric cylinder without motor				Optional with step motor (*2)									
MEQI-		50	L05	-	200	-	BC	-	S56	-	CK10	03	N	015				
Model		①	②		③		④		⑤		⑥	⑦	⑧	⑨				
①	②	③			⑤						⑥		⑦					
Size		Ball screw lead		Stroke		Size		Flange (For motor installation)			Controller	Motor	Motor + Encoder cable					
32	L01	1 mm		100~400	32	M		Mitsubishi Yaskawa Delta		Dimensions		Size	CK10	SM (for S42, S56)	01	1 m (CM20 only)		
	L02	2 mm		100~600	40													
40	L05	5 mm		100~800	50					10	50/100W servo	32, 40					CM20 *	BM (for B42, B56)
50	L10	10 mm		100~1000	63,80	40	200/400W servo	50, 63										
63		20 mm				75	750W servo	80										
80	L20	20 mm				P		Panasonic		10	50/100W servo	32, 40	⑧	I/O type	N	NPN	⑨	I/O cable length
80	L32	32 mm								40	400W servo	50, 63						
										75	750W servo	80						
				④	Motor position		S		Mindman		42	□42 Step NEMA 17	32, 40	015	1.5 m (stanadrr)			
		BC	Direct connection	56	□56 Step NEMA 23	50, 63					03	3 m						
		BA	Turned															
*1. Motor not included. Please refer to the "Motor Selection Table".																		

*1. Motor not included. Please refer to the "Motor Selection Table". 

*2. For the optional transmission cable (CK10-C035) for controller management. 

Accessories & Connector

Accessories							
Code	LB (Purchase 2 pcs)	LC (Purchase 2 pcs)	CA	CB	CDB (Purchase CB+PIN)	FAC	FBC
Mounting Size							
32	LB-Q2-32	LC-EQ1-32	CA-Q2-32	CB-Q2-32	CDB-Q2-32	FAC-Q2-32	FAC-Q2-32
40	LB-Q2-40	LC-EQ1-40	CA-Q2-40	CB-Q2-40	CDB-Q2-40	FAC-Q2-40	FAC-Q2-40
50	LB-Q2-50	LC-EQ1-50	CA-Q2-50	CB-Q2-50	CDB-Q2-50	FAC-Q2-50	FAC-Q2-50
63	LB-Q2-63	LC-EQ1-63	CA-Q2-63	CB-Q2-63	CDB-Q2-63	FAC-Q2-63	FAC-Q2-63
80	LB-EQ1-80	LC-EQ1-80	CA-Q2-80	CB-Q2-80	CDB-Q2-80	FAC-EQ1-80	FAC-Q2-80

	Accessories			Connector		
Code	TFA	TFB	TC 	Y	I	YS (Y+Floating pin)
Mounting Size						
32	TFA-EQ1-32		TC-EQ1-32	Y-Q2-32	I-Q2-32	YS-Q2-32
40	TFA-EQ1-40		TC-EQ1-40	Y-Q2-40	I-Q2-40	YS-Q2-40
50	TFA-EQ1-50		TC-EQ1-50	Y-Q2-50	I-Q2-50	YS-Q2-50
63	TFA-EQ1-63		TC-EQ1-63			
80	TFA-EQ1-80	TFB-EQ1-80	TC-EQ1-80	Y-Q2-80	I-Q2-80	YS-Q2-80

 Factory assembled and shipped (self-assembled is not recommended)

Pin

Applicable	YS connector	Y&I connector	CA&CB accessories
Code	PIN-S	PIN-Y-P (with split pin)	PIN-CB-P (with split pin)
Fig Size			
32	PIN-Q2-32-S	PIN-Q2-32-2-P	PIN-Q2-32-1-P
40	PIN-Q2-40-S	PIN-Q2-40-2-P	PIN-Q2-40-1-P
50	PIN-Q2-50-S	PIN-Q2-50-2-P	PIN-Q2-50-1-P
63			PIN-Q2-63-1-P
80	PIN-Q2-80-S	PIN-Q2-80-2-P	PIN-Q2-80-1-P

Order example of self-assembled

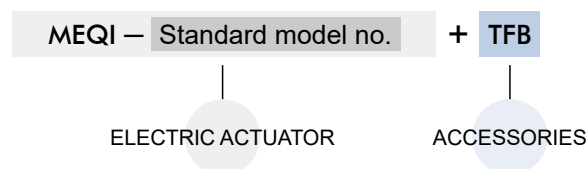
The size 50 of LB accessories, Y connector and pin.

No.	Order number	Qty
1	LB-Q2-50	2
2	Y-Q2-50	1
3	PIN-Q2-50-2-P	1

* To order accessories/ connectors/ pin separately, please place orders separately according to the order codes in the above table.

Order example of factory assembled

 Actuator and accessories are distinguished by the symbol "+".

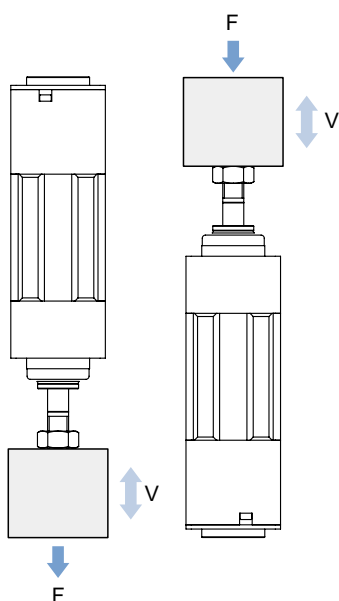


Life – Axial Force relationship chart

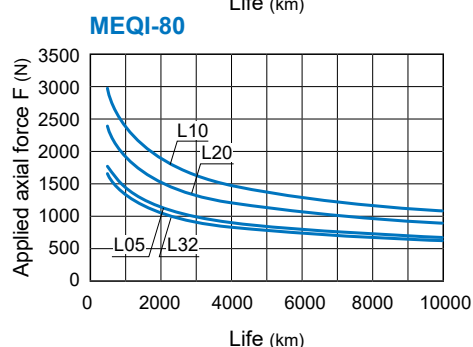
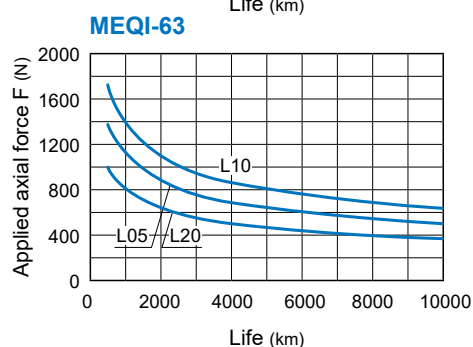
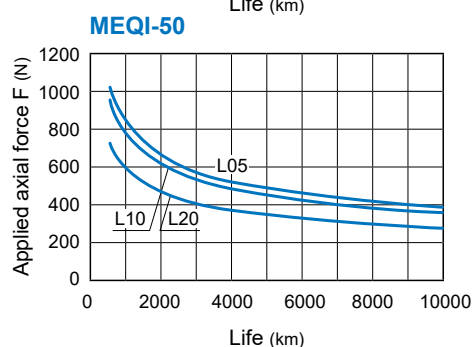
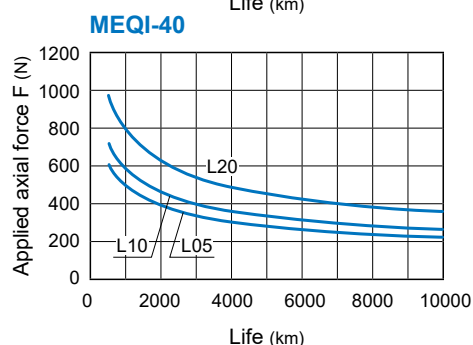
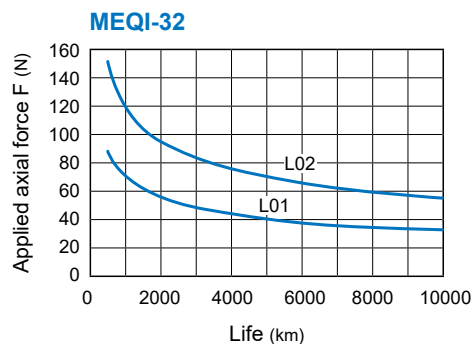
The estimated service life under an axial load of F is shown in the plot. The environmental condition is 25°C, and a safety factor of 1.5 is used for both the ball screw and ball bearing.

Speed – Stroke relationship chart

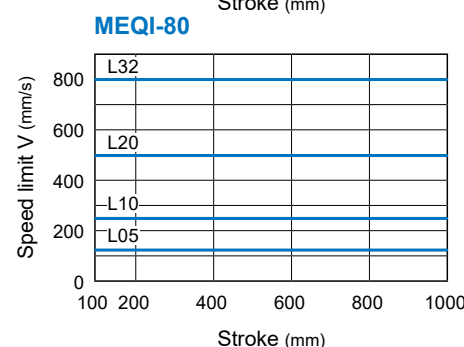
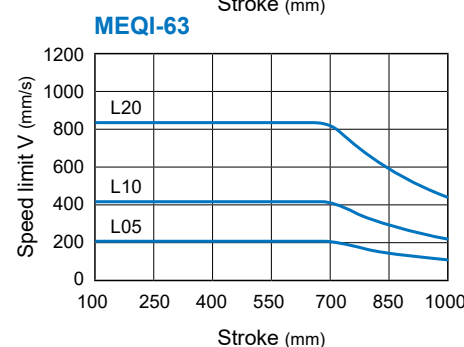
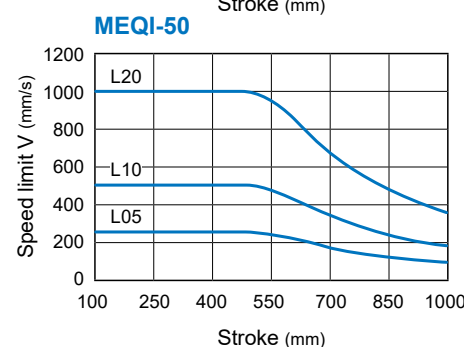
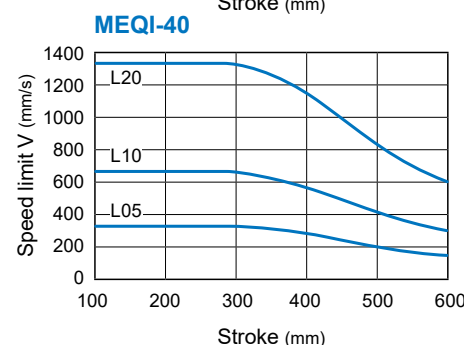
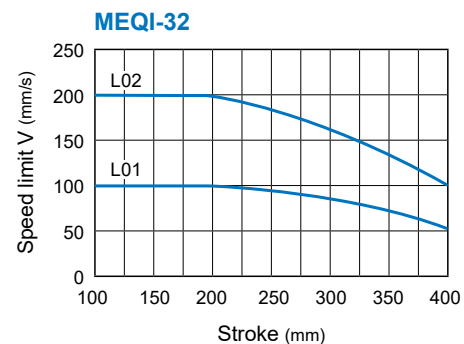
The maximum working speed is constrained by the product's stroke, as depicted in the plot.



Life – Applied axial force relationship chart



Max speed limit – Stroke relationship chart

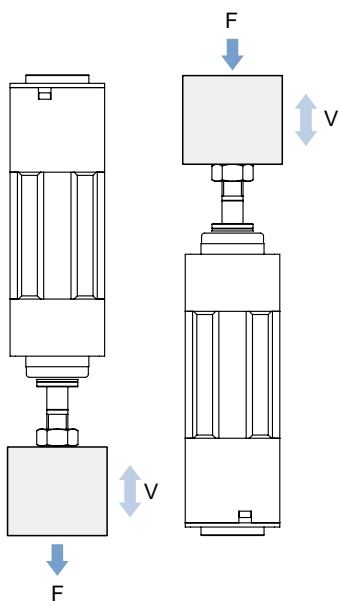


Motor output chart

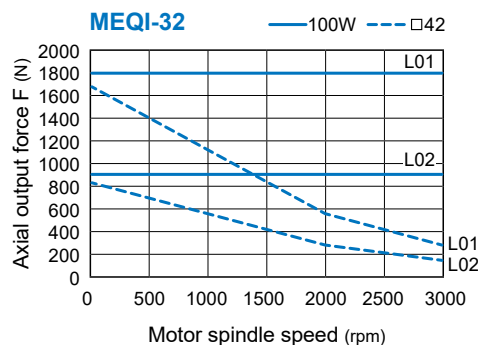
The relationship between axial output force and motor spindle speed is depicted in the plot. The default gear ratio is 1:1.

Speed chart

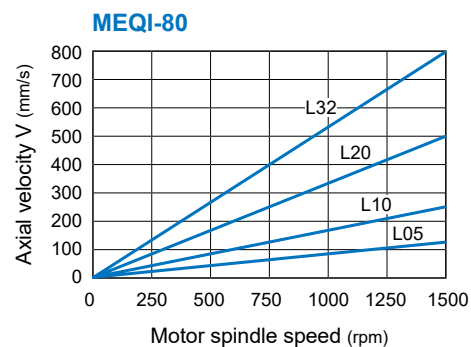
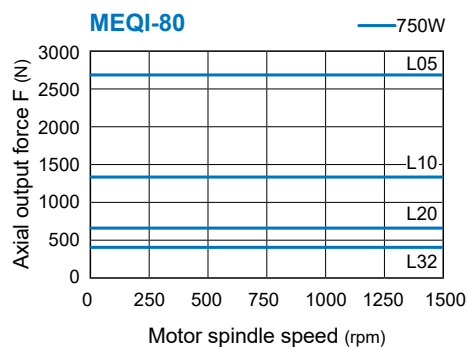
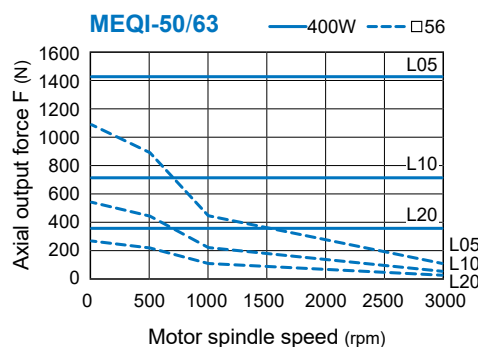
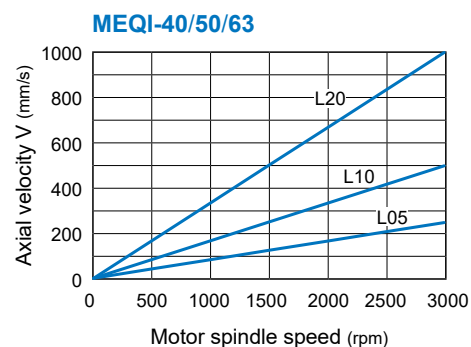
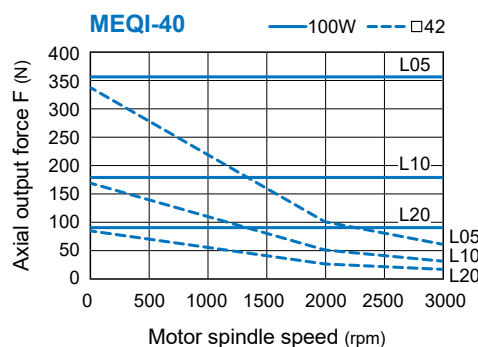
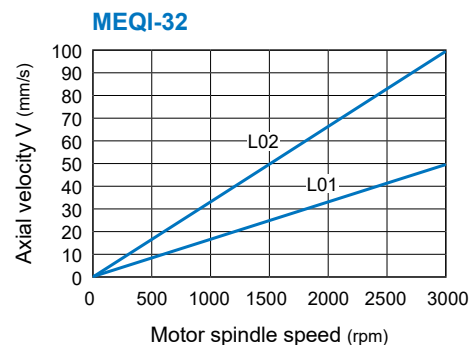
The relationship between axial velocity and motor spindle speed is depicted in the plot. The default gear ratio is 1:1.



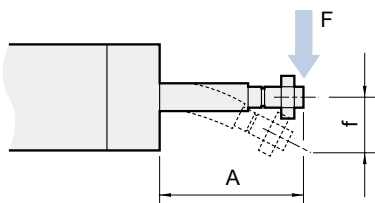
Motor spindle speed – Axial output force relationship chart



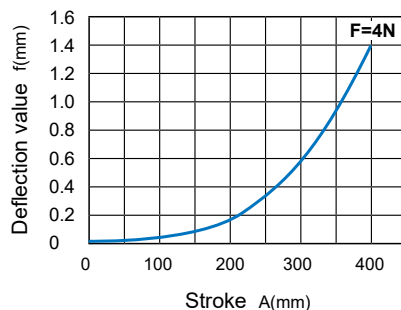
Motor spindle speed – Axial velocity relationship chart



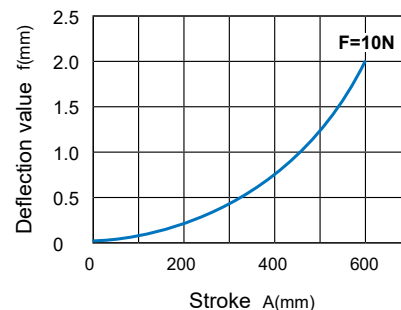
Rod bending deflection



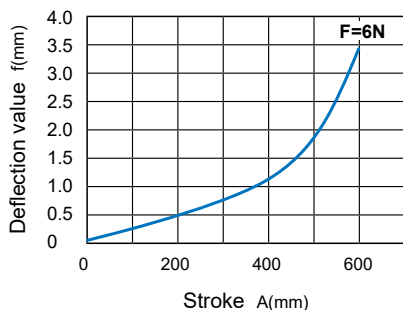
MEQI-32



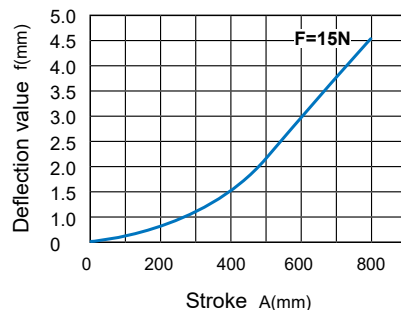
MEQI-50



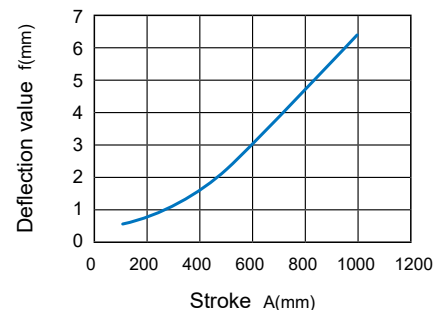
MEQI-40



MEQI-63



MEQI-80



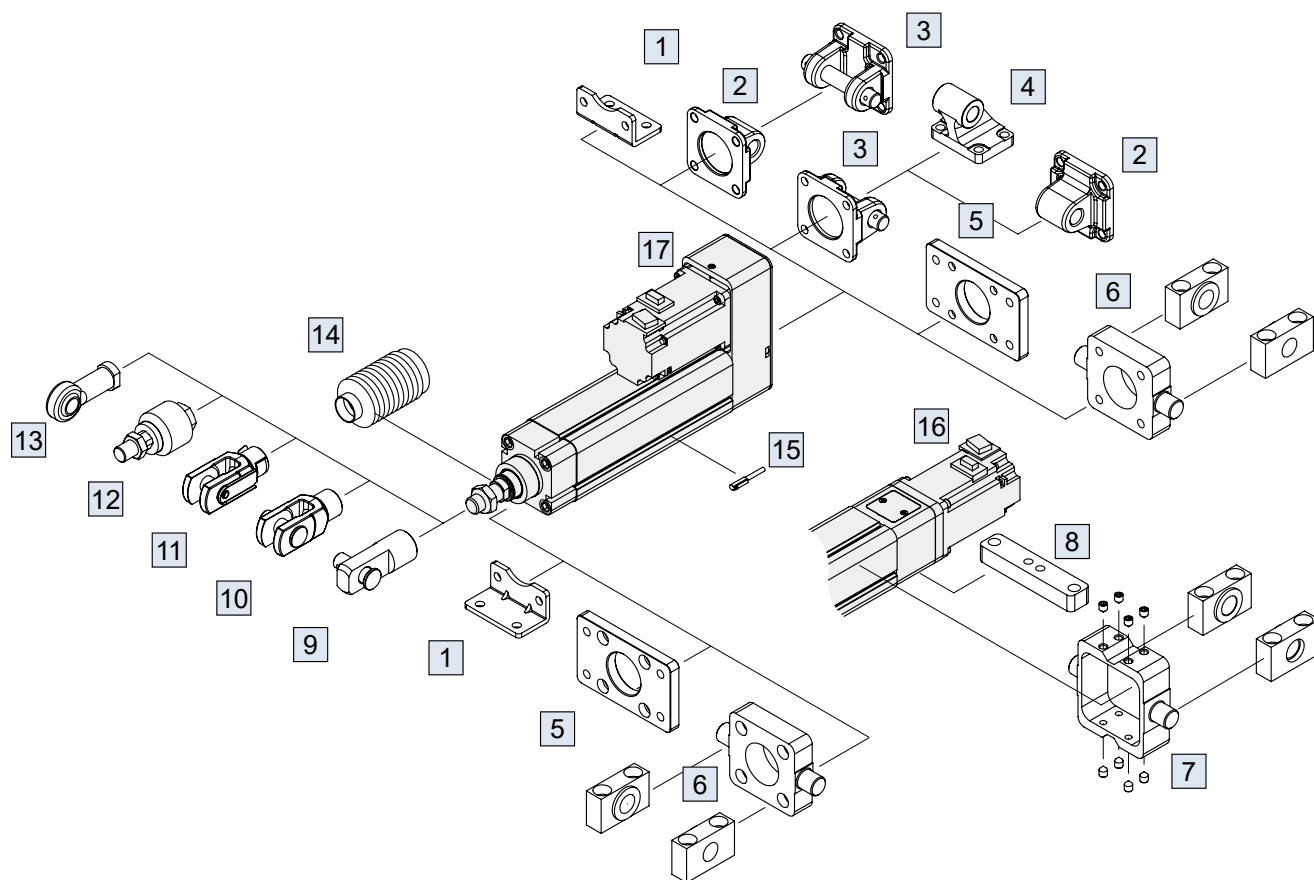
Weight

Unit: kg

Size	Basic weight					Each 100 mm					
	32	40	50	63	80	32	40	50	63	80	
Fig											
Motor position	BC	1.10	2	2.58	4.15	9.3	0.43	0.53	0.73	0.99	2
	BA	1.25	2	2.99	4.39	10	0.43	0.53	0.73	0.99	2

Model	LB	LC	CA	CB	CDB	FAC / FBC
Size						
32	0.16	0.05	0.22	0.19	0.17	0.24
40	0.21	0.05	0.25	0.22	0.23	0.30
50	0.32	0.06	0.39	0.35	0.46	0.46
63	0.40	0.08	0.67	0.54	0.55	0.68
80	0.82	0.1	1.08	0.99	0.87	1.51

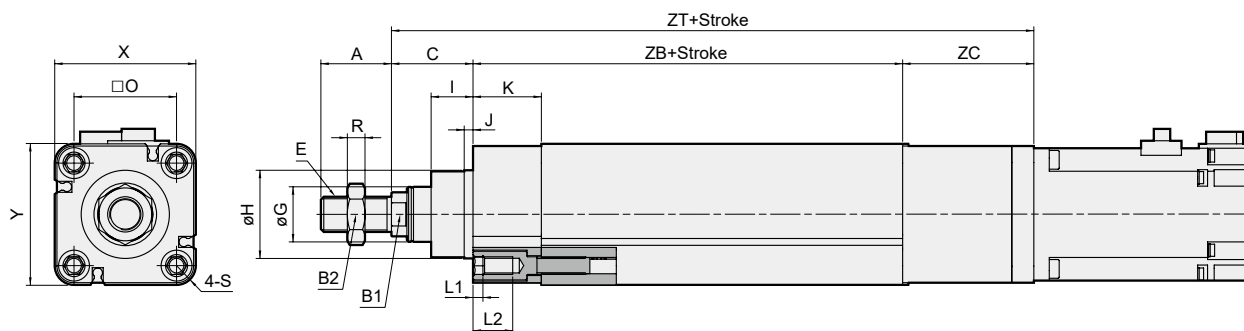
Model	TC	TFA / TFB	Y	I	PIN		YS
					Y / I	CA / CB	
Size							
32	0.21	0.20	0.07	0.09	0.02	0.04	0.02
40	0.43	0.40	0.12	0.14	0.03	0.06	0.03
50	0.51	0.61	0.27	0.34	0.08	0.07	0.07
63	0.80	1.20	0.27	0.33	0.08	0.15	0.07
80	1.40	2.60	0.56	0.56	0.15	0.16	0.15



No.	Accessories	Page link
1	Mounting accessories LB	Link
2	Mounting accessories CA	Link
3	Mounting accessories CB	Link
4	Mounting accessories CDB	Link
5	Mounting accessories FAC/FBC	Link
6	Mounting accessories TFA/TFB	Link
7	Mounting accessories TC	Link
8	Mounting accessories LC	Link
9	Accessories I+PIN	Link
10	Accessories Y+PIN	Link
11	Accessories YS	Link
12	Floating joint MFC	Link
13	Female rod ends PHS	Link
14	Protective bellows kit	—
15	Sensor switch RDC(V), RQC(V)	Link
16	Motor direct connection kit BC	Link
17	Motor Turned kit BA	Link

BC

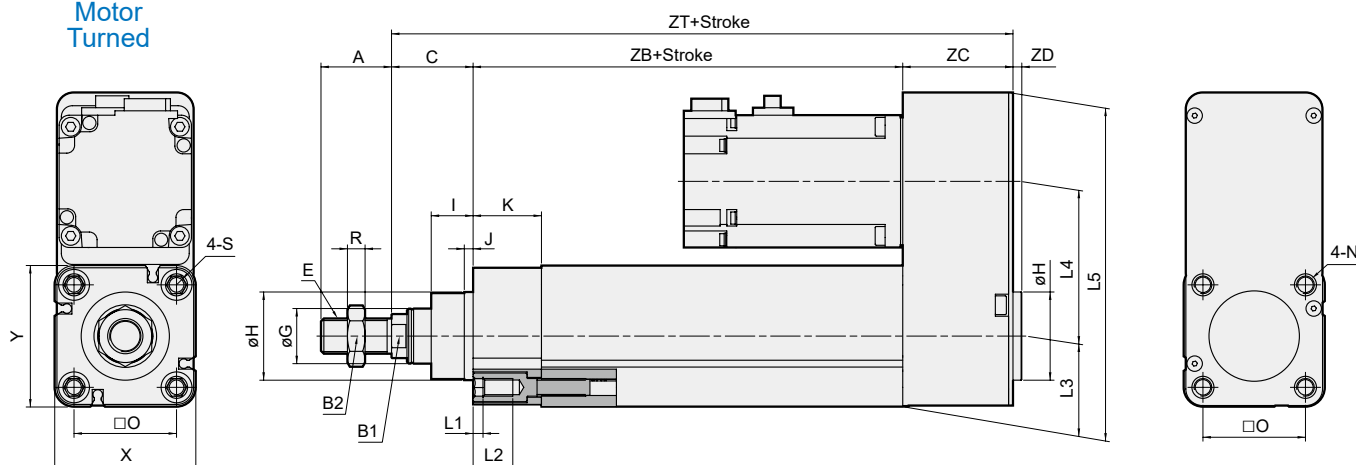
Motor direct connection



Code Size	A	B1	B2	C	E	G	H	I	J	K	L1	L2	O	R	S	X	Y	ZB	ZC	ZT
32	22	10	17	25.5	M10×1.25	20	30	10	5	27	4.5	17	32.5	8	M6×1.0	45	48.5	87	51.0	163.5
40	24	13	19	30.5	M12×1.25	20	35	12	4	30	4.5	17	38	6	M6×1.0	53	56	131	46.5	177.5
50	32	17	24	37	M16×1.5	25	40	19	4	31	4.5	18	46.5	8	M8×1.25	64	64	152	59.5	248.5
63	32	17	24	37	M16×1.5	30	45	19	4	35	4.5	18	56.5	8	M8×1.25	77	77	162	64.0	263.0
80	40	22	30	40	M20×1.5	45	55	20	4.5	40	6	20	72	10	M10×1.5	93	93	230	72.0	342.0

BA

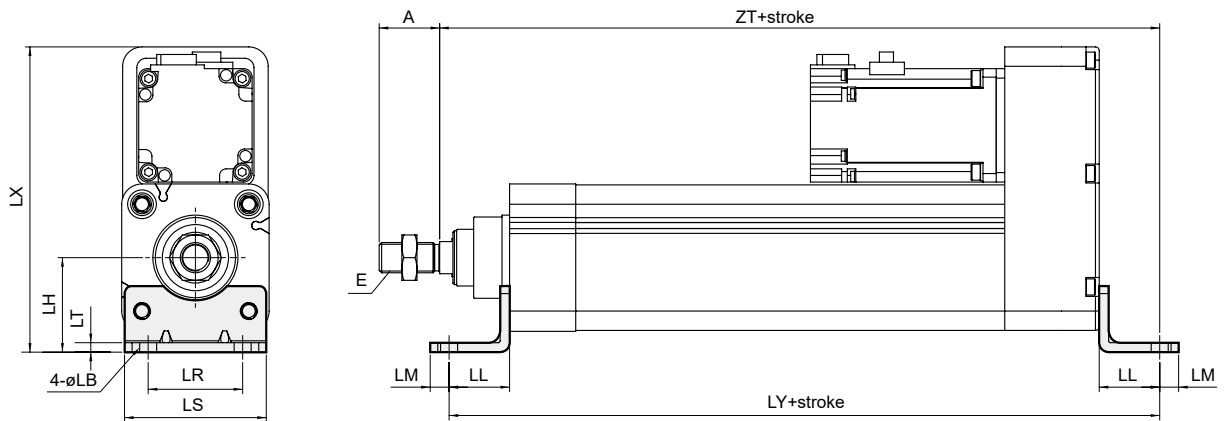
Motor Turned



Code Size	A	B1	B2	C	E	G	H	I	J	K	L1	L2	L3	L4	L5	N	O	R	S	X	Y	ZB	ZC	ZD	ZT
32	22	10	17	25.5	M10×1.25	20	30	10	5	27	4.5	17	24.5	48	100	M6×1.0×16L	32.5	8	M6×1.0	45	48.5	87	42	4	154.5
40	24	13	19	30.5	M12×1.25	20	35	12	4	30	4.5	17	28	51	108.5	M6×1.0×16L	38	6	M6×1.0	53	56	131	39	4	170
50	32	17	24	37	M16×1.5	25	40	19	4	31	4.5	18	32	70	142.5	M8×1.25×18L	46.5	8	M8×1.25	64	64	152	50	4	239
63	32	17	24	37	M16×1.5	30	45	19	4	35	4.5	18	39	70	150.5	M8×1.25×12L	56.5	8	M8×1.25	78	78	162	50	4	249
80	40	22	30	40	M20×1.5	45	55	20	4.5	40	6	20	49.5	102.5	209.5	M10×1.5×16L	72	10	M10×1.5	93	93	230	68	3	338

LB

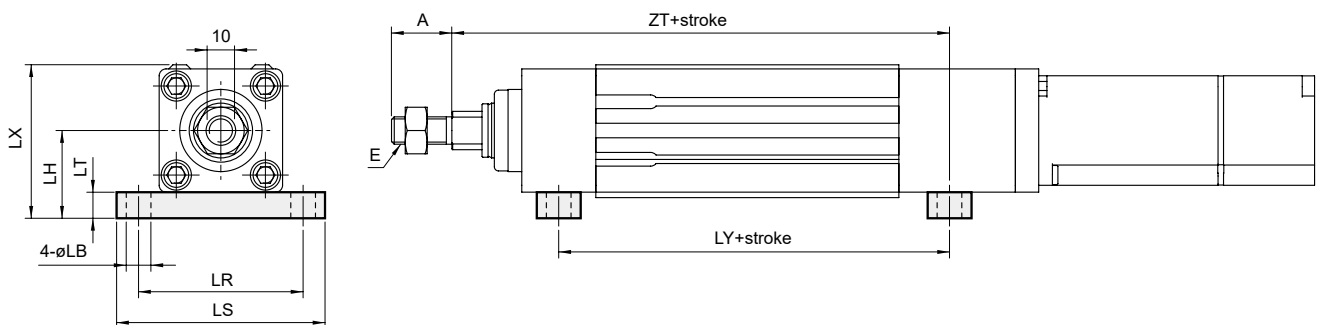
* Only for (BA) motor turned type.



Code Size	A	E	LB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
32	22	M10×1.25	7	32	24	8	32	46.5	5	107.5	177	178.5
40	24	M12×1.25	9	36	28	10	36	53	5	116.5	226	228
50	32	M16×1.5	9	45	32	10	45	65	5	163.0	266	271
63	32	M16×1.5	9	50	32	10	50	75	5	161.5	276	281
80	40	M20×1.5	12	63	41	13	63	95	6	223	380	379

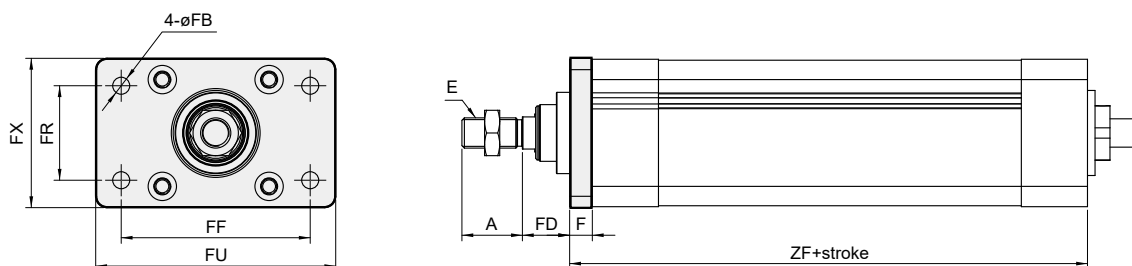
LC

* Only for (BC) motor direct connection type.



Code Size	A	E	LB	LH	LR	LS	LT	LX	LY	ZT
32	22	M10×1.25	9	32	60	76	9.5	56	92	131
40	24	M12×1.25	9	36	68	84	9.5	64	144	189.5
50	32	M16×1.5	9	45	81	94	14	77	168	221
63	32	M16×1.5	9	50	92	110	12.5	88.5	176.5	231
80	40	M20×1.5	11	63	110	130	16.5	112.5	251	311

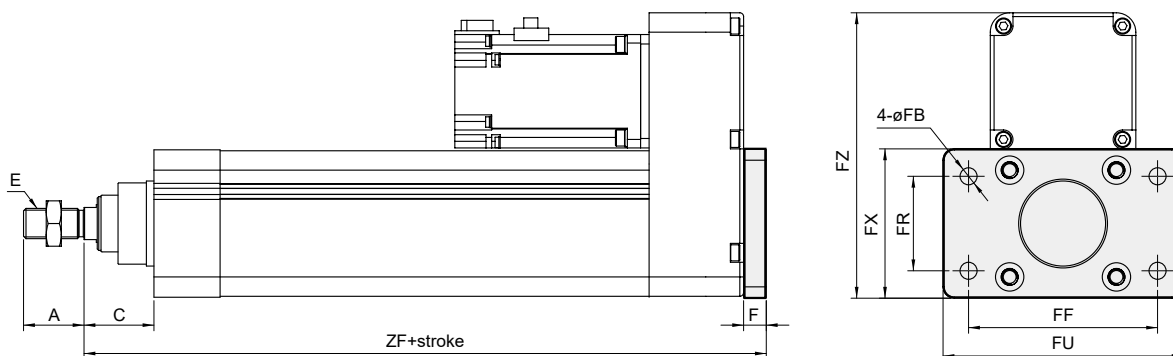
FAC



Code Size	A	E	F	FB	FD	FF	FR	FU	FX	ZF
32	22	M10×1.25	10	7	15.5	64	32	79	50	97
40	24	M12×1.25	10	9	20.5	72	36	90	52	141
50	32	M16×1.5	12	9	25	90	45	112	67	164
63	32	M16×1.5	12	9	25	100	50	127	79	174
80	40	M20×1.5	16	12	24	126	63	154	94	246

FBC

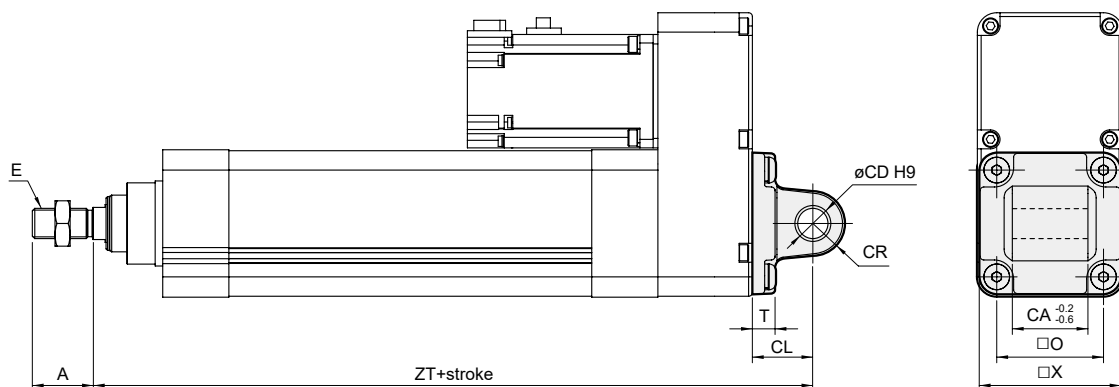
* Only for (BA) motor turned type.



Code Size	A	C	E	F	FB	FF	FR	FU	FX	FZ	ZF
32	22	25.5	M10×1.25	10	7	64	32	79	50	100.5	164.5
40	24	30.5	M12×1.25	10	9	72	36	90	52	106.5	210.5
50	32	37	M16×1.5	12	9	90	45	112	67	151.5	251
63	32	37	M16×1.5	12	9	100	50	127	79	151.0	261
80	40	40	M20×1.5	16	12	126	63	154	94	209.5	246

CA

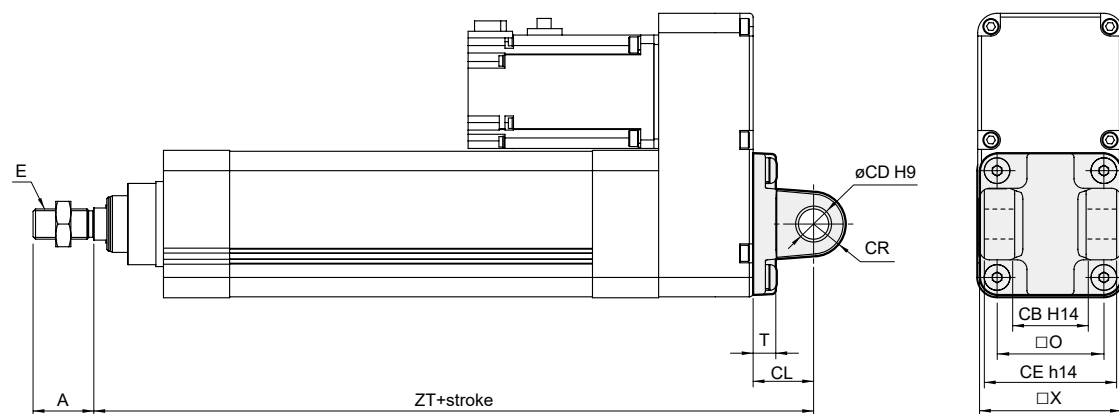
* Only for (BA) motor turned type.



Code Size	A	CA	CD	CL	CR	E	O	T	X	ZT
32	22	26	10	22	R10.5	M10×1.25	32.5	10	46.5	176.5
40	24	28	12	25	R12	M12×1.25	38	10	54	225.5
50	32	32	12	27	R13	M16×1.5	46.5	12	64	266
63	32	40	16	32	R17	M16×1.5	56.5	12	75	281
80	40	50	16	36	R17	M20×1.5	72	16	93	374

CB

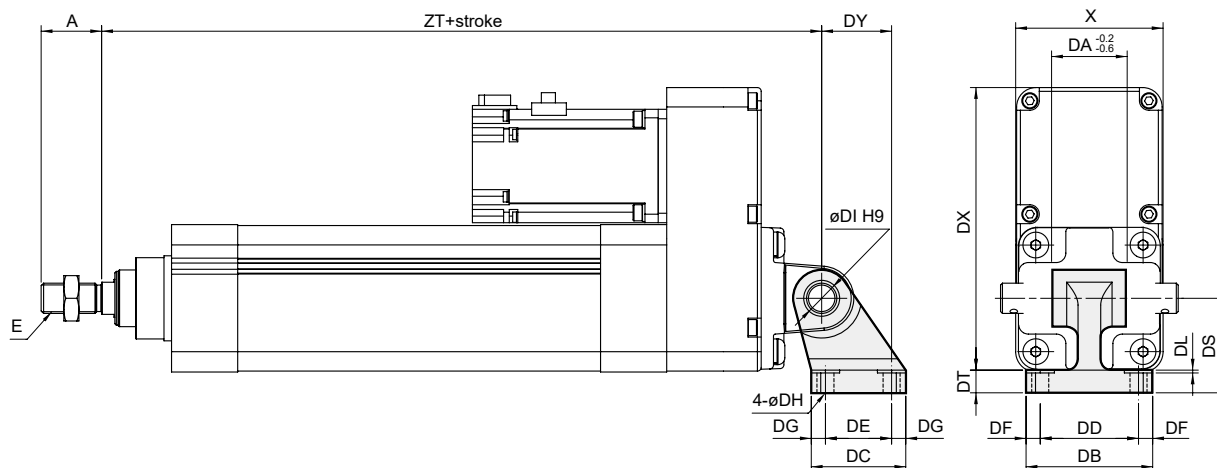
* Only for (BA) motor turned type.



Code Size	A	CB	CD	CE	CL	CR	E	O	T	X	ZT
32	22	26	10	45	22	R10.5	M10×1.25	32.5	10	46.5	176.5
40	24	28	12	52	25	R12	M12×1.25	38	10	54	225.5
50	32	32	12	60	27	R13	M16×1.5	46.5	12	64	266
63	32	40	16	70	32	R17	M16×1.5	56.5	12	75	281
80	40	50	16	90	36	R17	M20×1.5	72	16	93	374

CDB

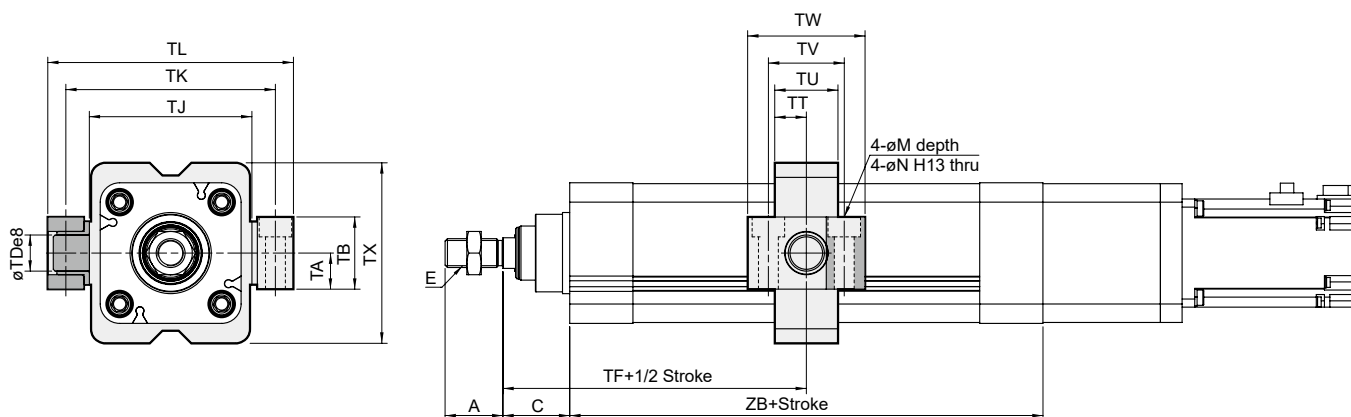
CB+Pin (Extra purchase) * Only for (BA) motor turned type.



Code Size	A	DA	DB	DC	DD	DE	DF	DG	DH	DI	DL	DS	DT	DX	DY	E	X	ZT
32	22	26	50	30	38	18	6	6	6.6	10	1.5	32	8	101	21	M10×1.25	45	176.5
40	24	28	54	35	41	22	6.5	6.5	6.6	12	1.5	36	10	116.5	24	M12×1.25	53	225.5
50	32	32	65	45	50	30	7.5	7.5	9	12	1.5	45	12	151.0	33	M16×1.5	64	266
63	32	40	67	50	52	35	7.5	7.5	9	16	1.5	50	12	149.5	37	M16×1.5	78	281
80	40	50	86	60	66	40	10	10	11	16	2.5	63	14	209	47	M20×1.5	93	374

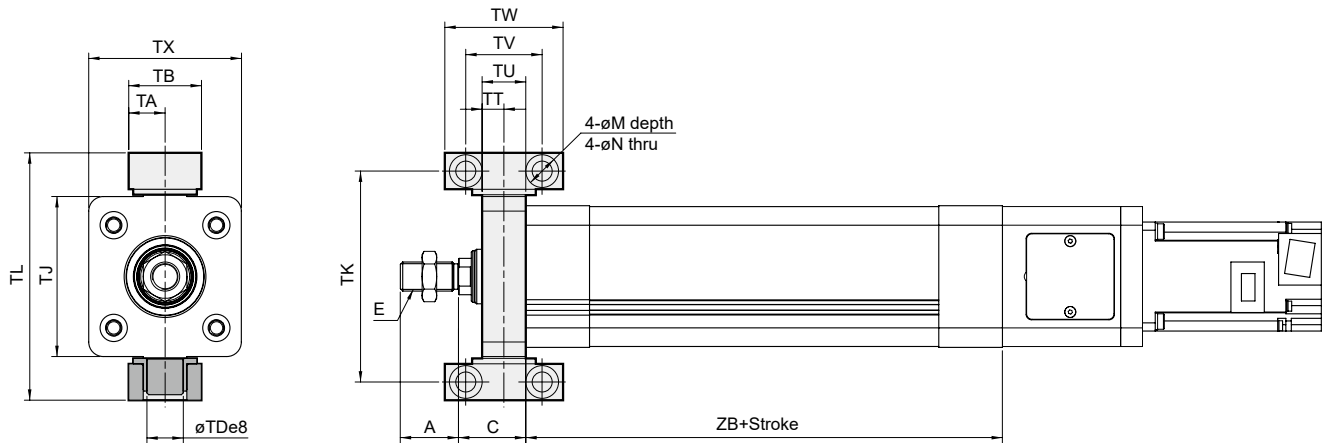
TC

* For (BA) motor turned type usage, the stroke must exceed 250mm.



Code Size	A	C	E	M	N	TA	TB	TD	TF	TJ	TK	TL	TT	TU	TV	TW	TX	ZB
32	22	25.5	M10×1.25	11×6.8	6.6	15	30	12	44.5	50	71	86	12.5	25	32	46	65	87
40	24	30.5	M12×1.25	15×8.8	9	18	36	16	64	63	87	105	14	28	36	55	75	131
50	32	37	M16×1.5	15×9	9	18	36	16	113	75	99	117	16	32	36	55	85	152
63	32	37	M16×1.5	18×11	11	20	40	20	118	90	116	136	17.5	35	42	65	100	162
80	40	40	M20×1.5	18×10.8	11	20	40	20	180	110	133	156	18	36	42	65	130	230

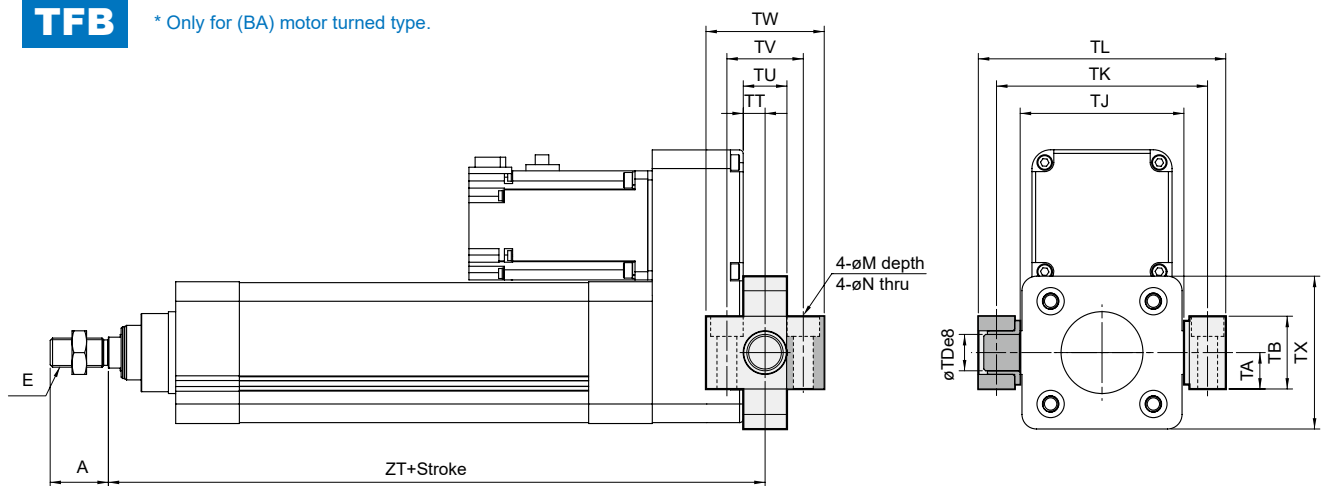
TFA



Code Size	A	C	E	M	N	TA	TB	TD	TJ	TK	TL	TT	TU	TV	TW	TX	ZB
32	22	25.5	M10×1.25	11×6.8	6.4	15	30	12	50	71	90	7	14	32	46	65	87
40	24	30.5	M12×1.25	15×8.8	9	18	36	16	63	87	105	10	20	36	55	54	131
50	32	37	M16×1.5	15×9	9	18	36	16	75	99	117	9.5	19	36	55	69	152
63	32	37	M16×1.5	18×11	11	20	40	20	90	116	136	12	24	42	65	84	162
80	40	40	M20×1.5	18×10.8	11	20	40	20	110	133	156	18	36	42	65	93	230

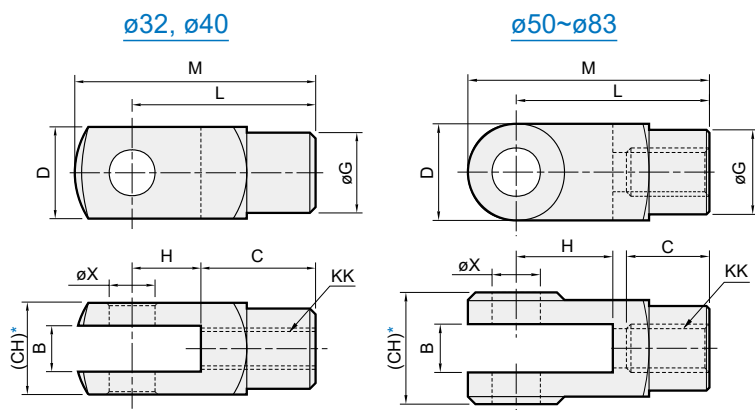
TFB

* Only for (BA) motor turned type.

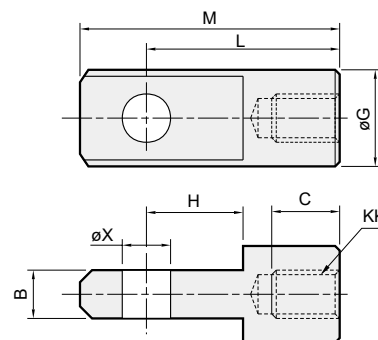


Code Size	A	E	M	N	TA	TB	TD	TJ	TK	TL	TT	TU	TV	TW	TX	ZT
32	22	M10×1.25	11×6.8	6.4	15	30	12	50	71	90	7	14	32	46	65	161.5
40	24	M12×1.25	15×8.8	9	18	36	16	63	87	105	10	20	36	55	54	210.5
50	32	M16×1.5	15×9	9	18	36	16	75	99	117	9.5	19	36	55	69	248.5
63	32	M16×1.5	18×11	11	20	40	20	90	116	136	12	24	42	65	84	261
80	40	M20×1.5	18×10.8	11	20	40	20	110	133	156	18	36	42	65	93	356

Y connector



I connector

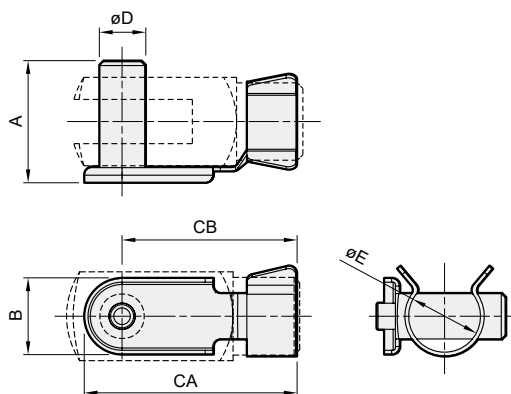


* Please do not use the sand casting plate as datum plane, because we do not machine it. If you have this special demand, please contact our sales representative.

Code	B		C		CH		D		G		H		KK		L		M		X ^{H9}
Tube I.D.	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
32	10 ^{+0.5} _{+0.15}	10 ^{-0.1} _{-0.2}	20	17	19	—	19	—	ø18	ø20	20	15	M10×1.25	40	40	52	52	ø10 ^{+0.04} ₀	
40	12 ^{+0.5} _{+0.15}	12 ^{-0.1} _{-0.2}	24	21	22	—	22	—	ø20	ø24	24	18	M12×1.25	48	48	62	62	ø12 ^{+0.04} ₀	
50	16 ^{+0.3} _{+0.1}	16 ^{-0.1} _{-0.3}	28	23	32	—	32	—	ø28	ø32	32	32	M16×1.5	64	64	89	86	ø16 ^{+0.04} ₀	
63	16 ^{+0.3} _{+0.1}	16 ^{-0.1} _{-0.3}	28	23	32	—	32	—	ø28	ø32	32	32	M16×1.5	64	64	89	86	ø16 ^{+0.04} ₀	
80	20 ^{+0.3} _{+0.1}	20 ^{-0.1} _{-0.3}	33	30	45	—	40	—	36	36	40	40	M20×1.5	80	80	100	108	ø20 ^{+0.05} ₀	

PIN

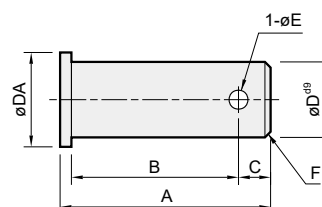
S



for floating pin

Code	A	B	CA	CB	D ^{d9}	E
Tube I.D.						
32	26	14	45	38	ø10 ^{-0.04} _{-0.07}	17
40	31	16	54	46	ø12 ^{-0.05} _{-0.09}	19
50,63	42	20	70	60	ø16 ^{-0.05} _{-0.09}	27
80	56	30	91	76	ø20 ^{-0.06} _{-0.11}	35

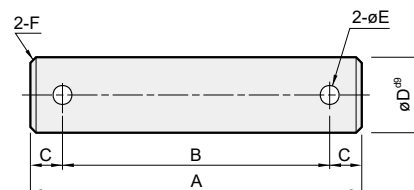
P



for Y & I connector

Code	A	B	C	D ^{d9}	DA	E	F	Split pin
Tube I.D.								
32	30	25	3.5	ø10 ^{-0.06} _{-0.09}	14	3.2	1	3.2×20L
40	37	30	5	ø12 ^{-0.06} _{-0.09}	16	3.2	1	3.2×20L
50,63	47	37	7	ø16 ^{-0.05} _{-0.09}	22	4	1	4×25L
80	62	50	8	ø20 ^{-0.06} _{-0.11}	30	5	1.5	5×35L

P

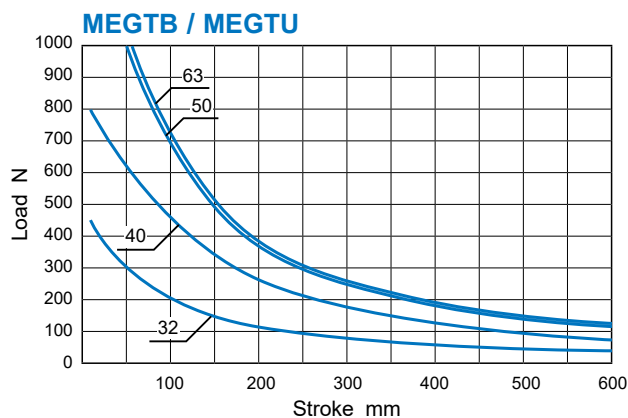
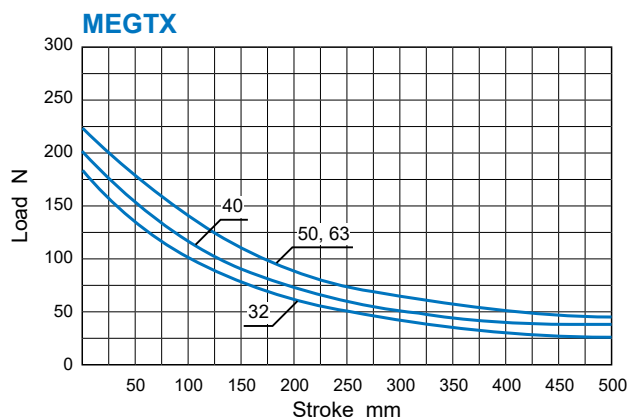
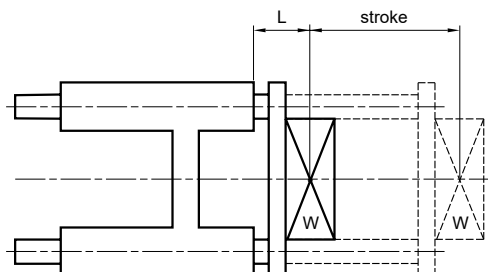


for CA & CB

Code	A	B	C	D ^{d9}	E	F	Split pin
Tube I.D.							
32	69	55	7	ø10 ^{-0.05} _{-0.09}	4	1.0	4×20L
40	76	62	7	ø12 ^{-0.05} _{-0.09}	4	1.0	4×20L
50	84	70	7	ø12 ^{-0.05} _{-0.09}	4	1.0	4×20L
63	94	80	7	ø16 ^{-0.05} _{-0.09}	4	1.0	4×30L
80	117	100	8.5	ø16 ^{-0.05} _{-0.09}	5	1.5	5×30L

Maximum allowable torque moment

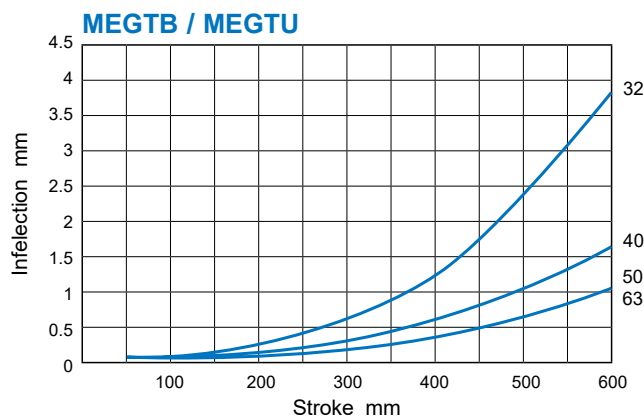
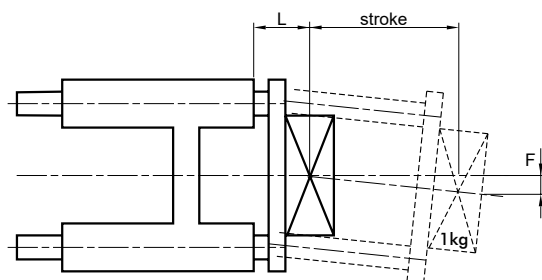
Max. allowable load



Maximum allowable torque moment

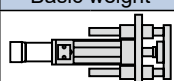
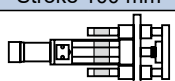
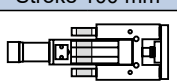
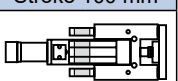
Max. allowable bending offset

Inflection of guide stems is due to their weight summed to the load of 1Kg related to the stroke.

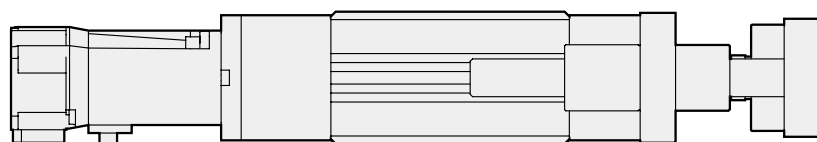


Weight

Unit: kg

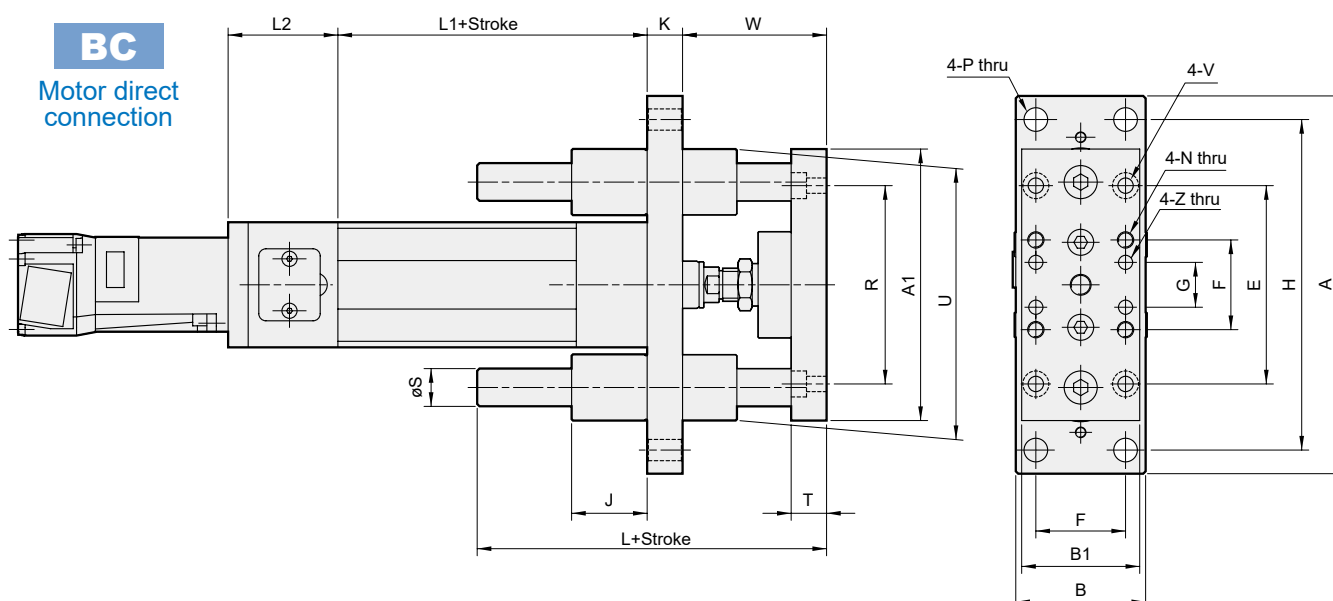
Model	MEGTX (Flange type)				MEGTB (Brass bush guide)				MEGTU (Linear bearing guide)				RP
Size	Basic weight		Stroke 100 mm		Basic weight		Stroke 100 mm		Basic weight		Stroke 100 mm		
Fig													
Motor	BC	BA	BC	BA	BC	BA	BC	BA	BC	BA	BC	BA	—
32	1.83	1.98	0.574		2.62	2.77	0.574		2.47	2.62	0.574		0.132
40	3.26	3.26	0.802		4.60	4.60	0.802		4.29	4.29	0.802		0.241
50	4.76	5.17	1.178		6.90	7.31	1.178		6.48	6.89	1.178		0.383
63	6.53	6.77	1.526		9.13	9.37	1.526		8.70	8.94	1.526		0.499

MEGTX (Flange type)



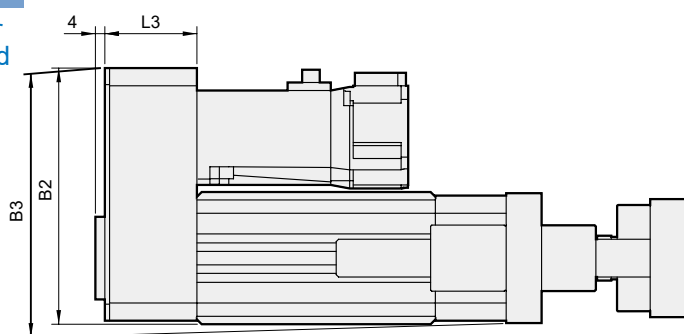
BC

Motor direct connection

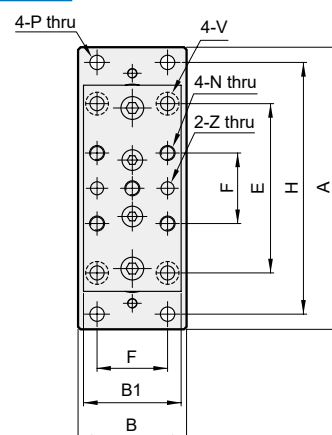


BA

Motor Turned



Size 32



Code Size	A	A1	B	B1	B2	B3	E	F	G	H	J	K	L	L1	L2	L3	N	P	R	S	T	U	V	W	Z
32	130	95	50	45	100	100.5	78	32.5	—	116	25.5	15	135.5	87	51	42	M6×1.0	ø6.6	74	12	15	95	ø6.5, ø10.5×6.5 dp	55	ø6H7×15 dp
40	160	115	55	50	108.5	108	84	38	19	140	32	15	148	131	46.5	39	M6×1.0	ø9	87	16	15	115	ø6.5, ø11×6.5 dp	61	ø6H7×15 dp
50	180	135	70	65	142.5	142.5	100	46.5	23	160	36	20	170	152	59.5	50	M8×1.25	ø9	104	20	20	136	ø9, ø14×8.5 dp	74	ø6H7×20 dp
63	195	150	80	75	150.5	152	105	56.5	28	175	36	20	170	162	64	50	M8×1.25	ø9	119	20	20	151	ø9, ø14×8.5 dp	74	ø6H7×20 dp

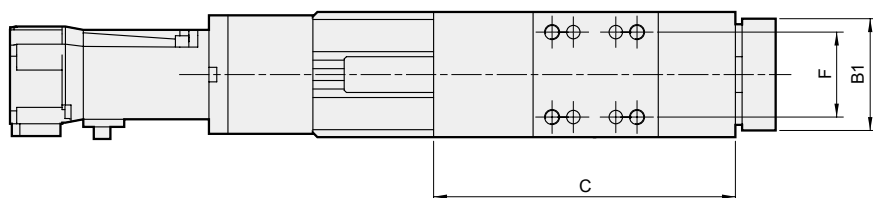
MEGTB / U Dimensions 32~63

TWIN-GUIDE ELECTRIC ACTUATOR (WITHOUT MOTOR)



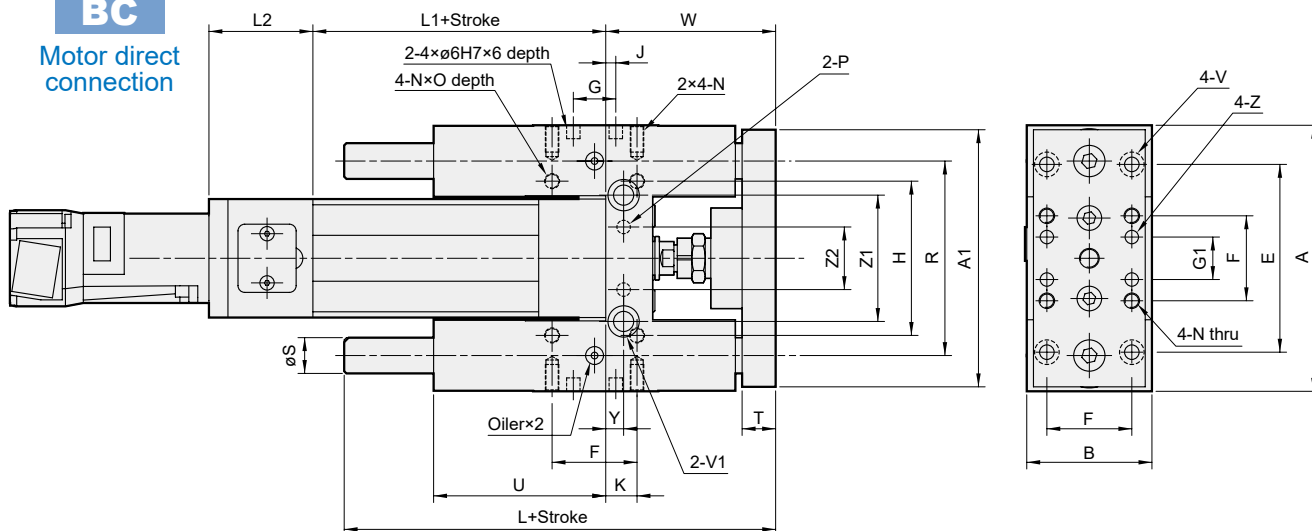
MEGTB (Brass bush guide)

MEGTU (Linear bearing guide)



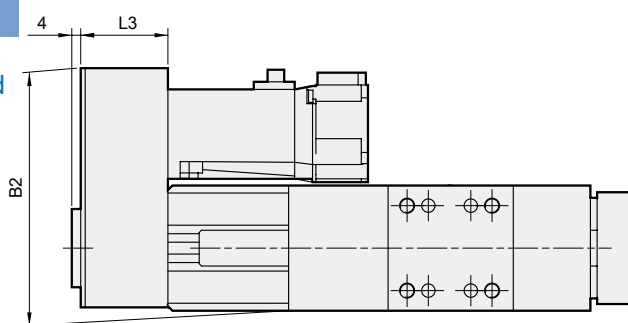
BC

Motor direct connection

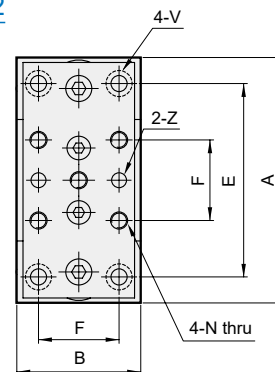


BA

Motor Turned



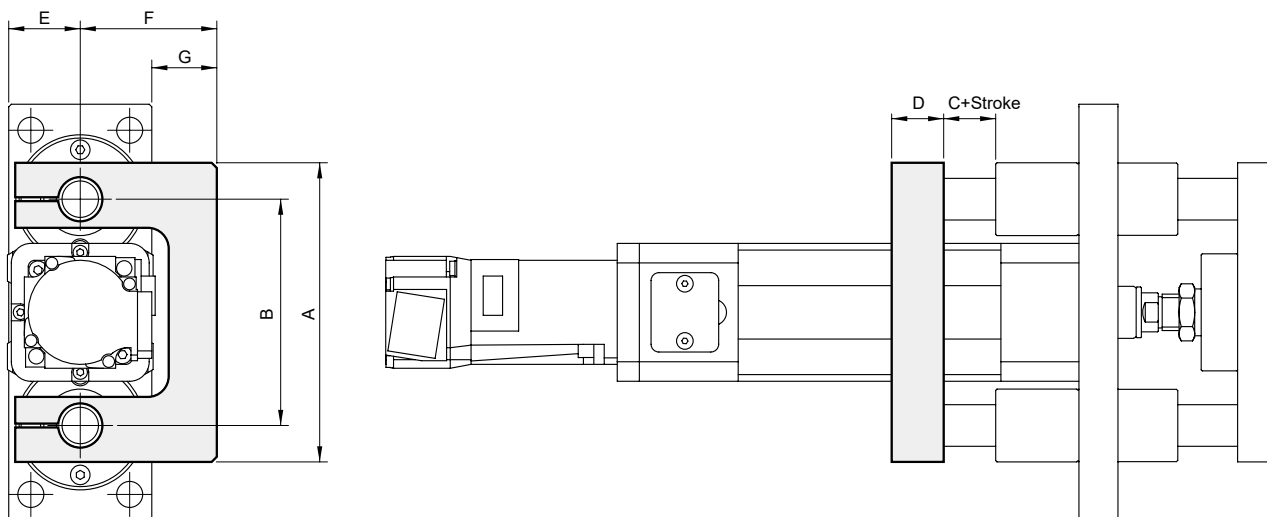
Size 32



Code Size	A	A1	B	B1	B2	C	E	F	G	G1	H	J	K	L	L1	L2	L3	N	O	P	R	S	T	U
32	99	95	50	45	100.5	120	78	32.5	16	—	61	5.7	14	179	87	51	42	M6×1.0	12	ø6H7×6 dp	74	12	15	67
40	119	115	56	50	108.5	135	84	38	19	19	69	4.5	14	193	131	46.5	39	M6×1.0	12	ø6H7×6 dp	87	16	15	77
50	141	135	70	65	145.5	150	100	46.5	23	23	85	7.5	19	216	152	59.5	50	M8×1.25	14	—	104	20	20	81
63	156	150	80	75	152	165	105	56.5	28	28	100	5	19	230	162	64	50	M8×1.25	16	—	119	20	20	96

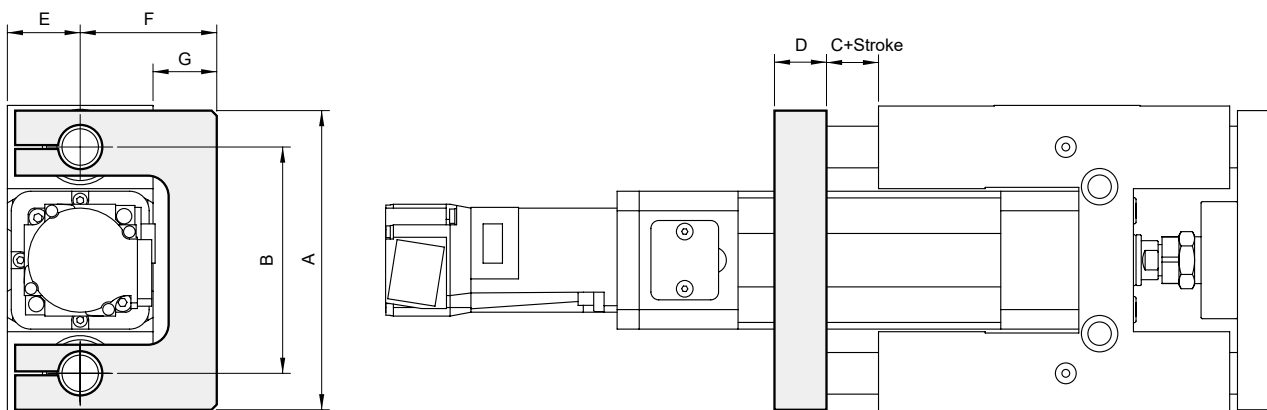
Code Size	V	V1	W	Y	Z	Z1	Z2
32	ø6.5, ø10.5×6.5 dp	ø9, ø14×5 dp	72	8	ø6H7×15 dp	46.5	23
40	ø6.5, ø11×6.5 dp	ø9, ø14×5 dp	76	8	ø6H7×15 dp	56.5	28
50	ø9, ø14×8.5 dp	—	94	—	ø6H7×20 dp	—	—
63	ø9, ø14×8.5 dp	—	94	—	ø6H7×20 dp	—	—

MEGTX



MEGTB

MEGTU



Code Size	A	B	C	D	E	F	G
32	95	74	25	15	25	47	22
40	115	87	20	20	28	52.5	24.5
50	135	104	20	20	35	67.5	32.5
63	150	119	20	20	40	78	38

* MEGTX-40: E=27.5, G=25

* MEGTB-50: C=21



Selection table



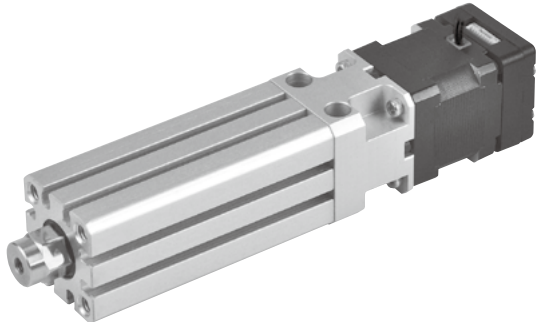
Applications



Motor selection



Controller

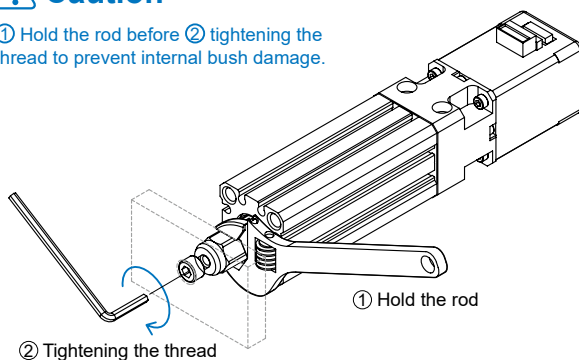


Motor type Step motor Transmission Ball screw

Sensor type Reed switch Anti-rotation mech. Hexagonal rod

Caution

① Hold the rod before ② tightening the thread to prevent internal bush damage.



Feature

- Non-rotating rod.
- Compact, Lightweight.
- Pre-lubricated before shipment.
- Good repeatability accuracy.
- Compatible with external magnetic sensors.

Specification

Model	MEJQ	
Size	16	20
Positioning repeatability (mm)	±0.02	
Lead (mm)	1	2
Ball screw (ø)	4	6
Stroke (mm)	30 / 50 / 75 / 100	
Anti-rotation tolerance *1 (°)	±0.7	
Sensor switch	RDC(V), RQC(V) 	

With step motor		☐ 25	☐ 28	☐ 35
Max. speed	SM (mm/s)	—	≤ 50	≤ 100
	BM (mm/s)	≤ 50	—	≤ 100
	OBM (mm/s)	≤ 50		
Rated load	Horizontal *2,3 (kg)	5	12	
	Vertical *2 (kg)	2	5	
Max. thrust *4 (N)		270	160	

*1. Do not apply radial loads or loads in directions other than the intended movement direction to the shaft.

*2. The rated load capacity varies depending on the moving speed. Please refer to the Speed-Load Graph.

*3. The rated horizontal load refers to a value when the shaft is free from radial and moment loads and is supported externally by a linear guide.

*4. Thrust and moving speed may vary depending on cable length, load, stroke and mounting conditions. Thrust tolerance: ±20%.

Order example

MEJQ — 20 L02 — 30 — BC — CK10 03 N 015

Model

Size Ball screw lead

16	L01	1 mm
20	L02	2 mm

Stroke

30	30 mm
50	50 mm
75	75 mm
100	100 mm

Motor position

BC	Direct connection
BA	Turned

I/O type

N	NPN
---	-----

* Not applicable to CM10.

I/O cable length

015	1.5 m (Standard)
03	3 m

* Not applicable to CM10.

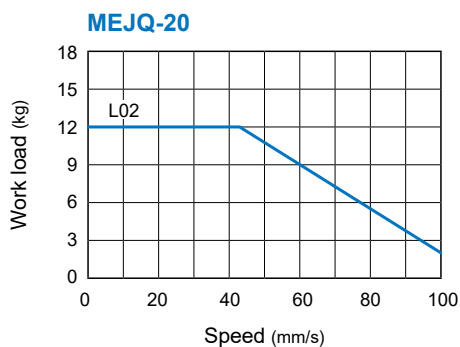
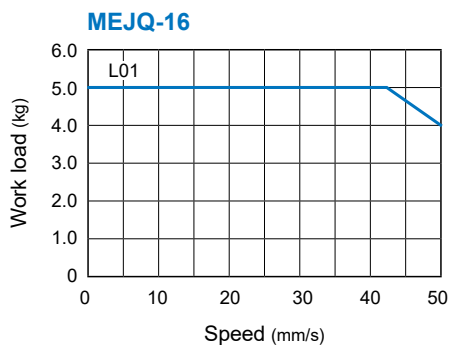
Motor + Encoder cable

Controller	Motor	
CK10	SM	01 1 m (CM10/20 only)
CM10 *	OBM	015 1.5 m (CK10 only)
CM20 *	BM	03 3 m (Standard)
		05 5 m

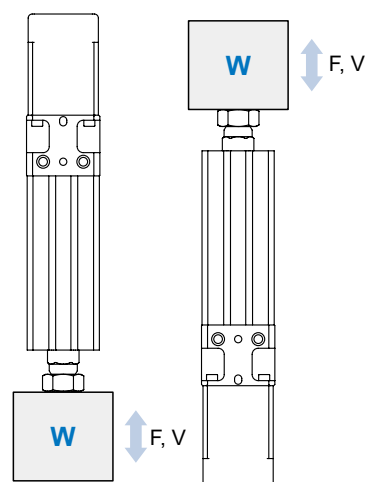
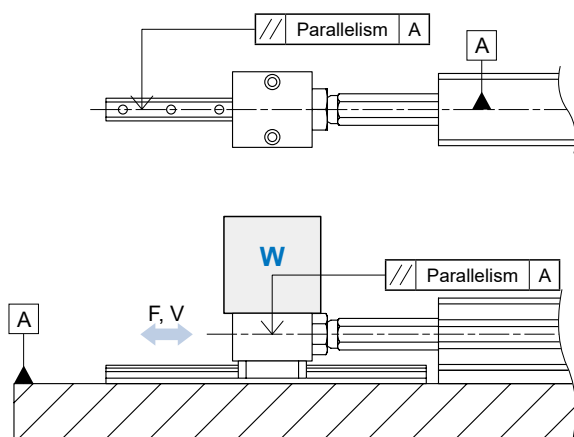
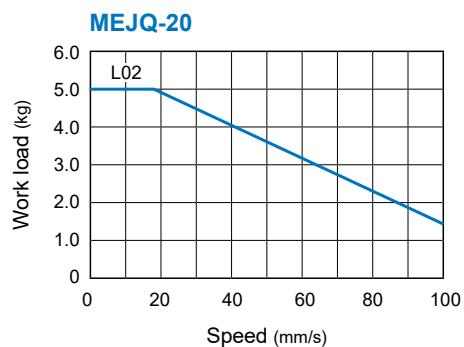
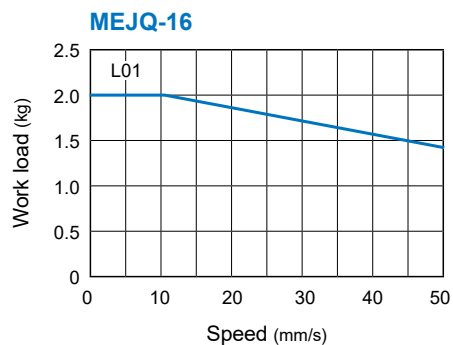
* Sensors are required for proper operation.

Speed-load curve diagram

Horizontal



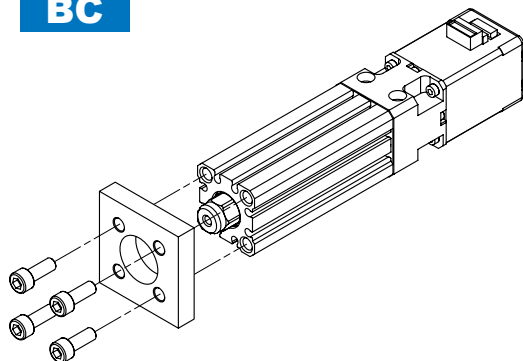
Vertical



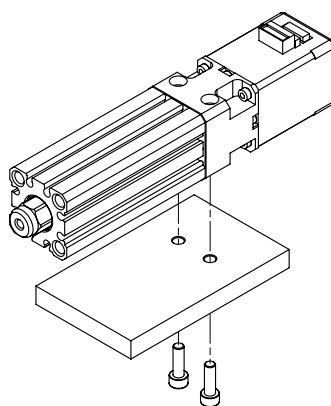
* Do not apply radial load to the rod.

Plate installation * The plates are prepared by the customers.

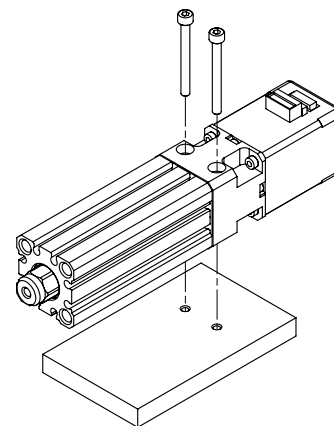
BC



A The plate is positioned in the front, and bolts are mounted from the front.

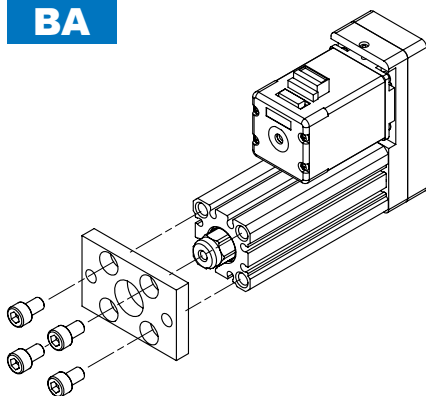


B The plate is positioned below, and bolts are mounted from below.

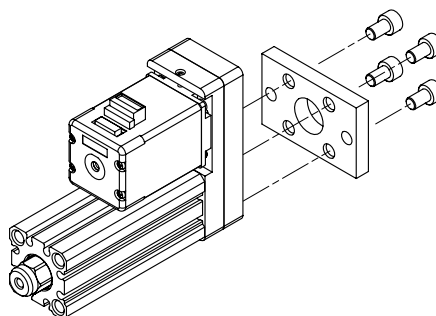


C The plate is positioned below, and bolts are mounted from above.

BA



A The plate is positioned in the front, and bolts are mounted from the front.

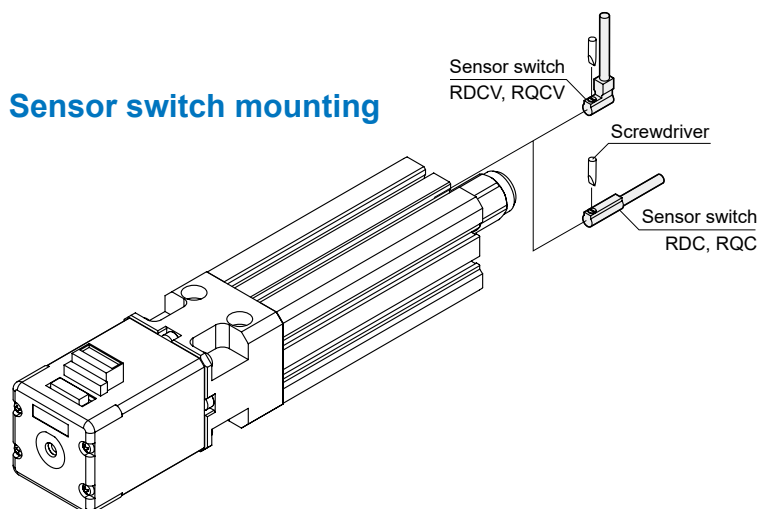


D The plate is positioned at the back, and bolts are mounted from the rear.

Bolt size

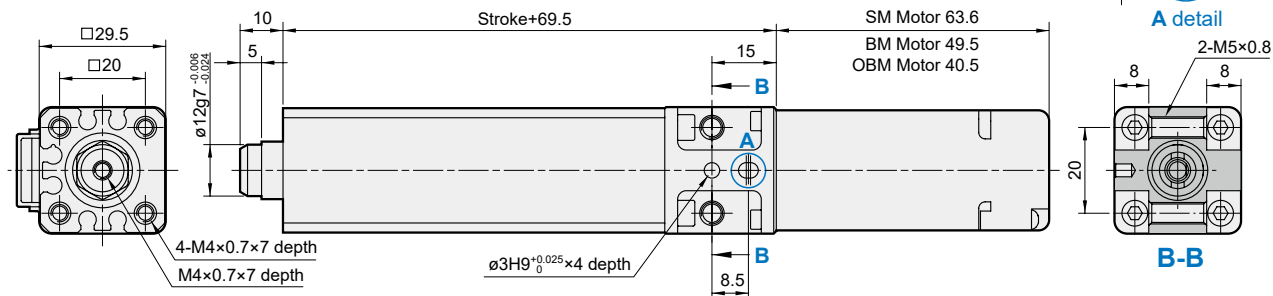
Installation method	Size	
	16	20
A, D	M4×0.7	M6×1.0
B	M5×0.8	M5×0.8
C	M4×0.7	M4×0.7

Sensor switch mounting

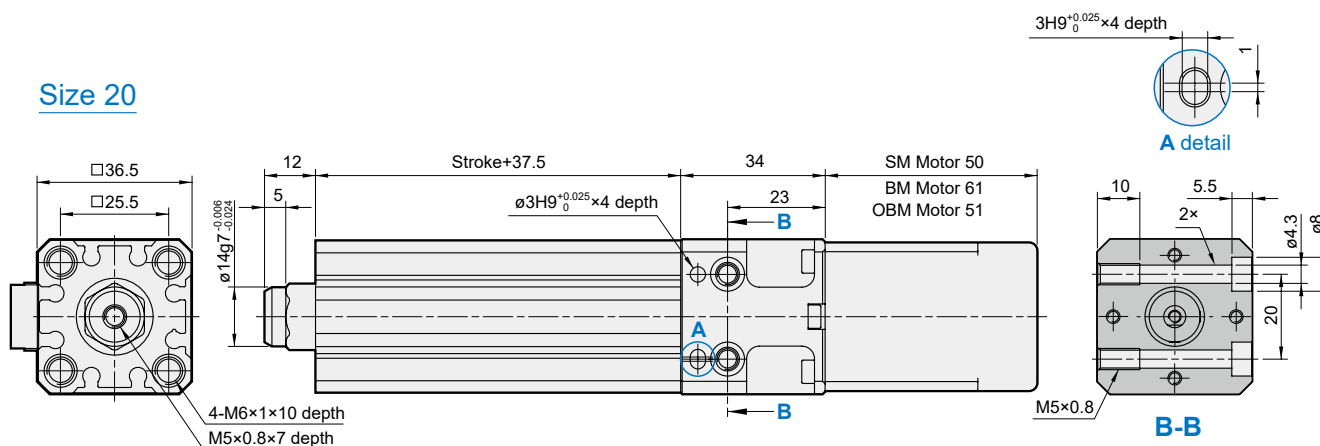


BC Motor direct connection

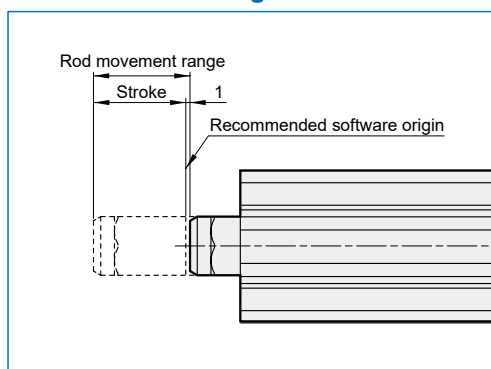
Size 16



Size 20



Rod movement range



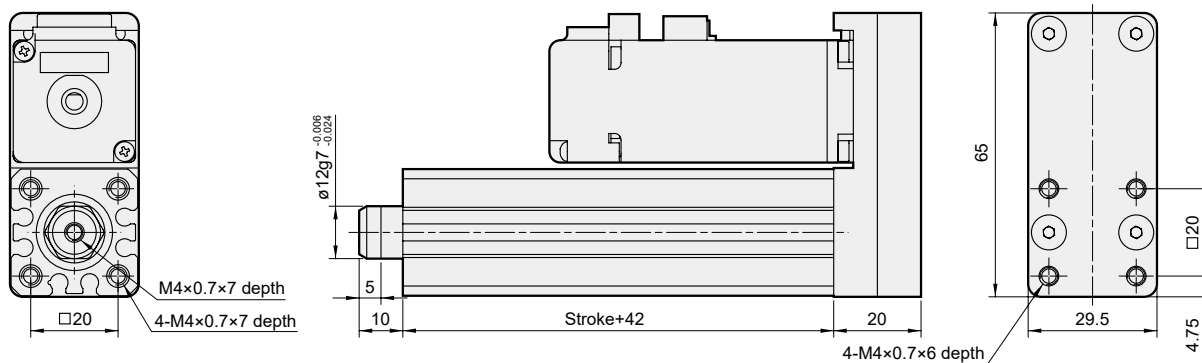
Weight

Unit: kg

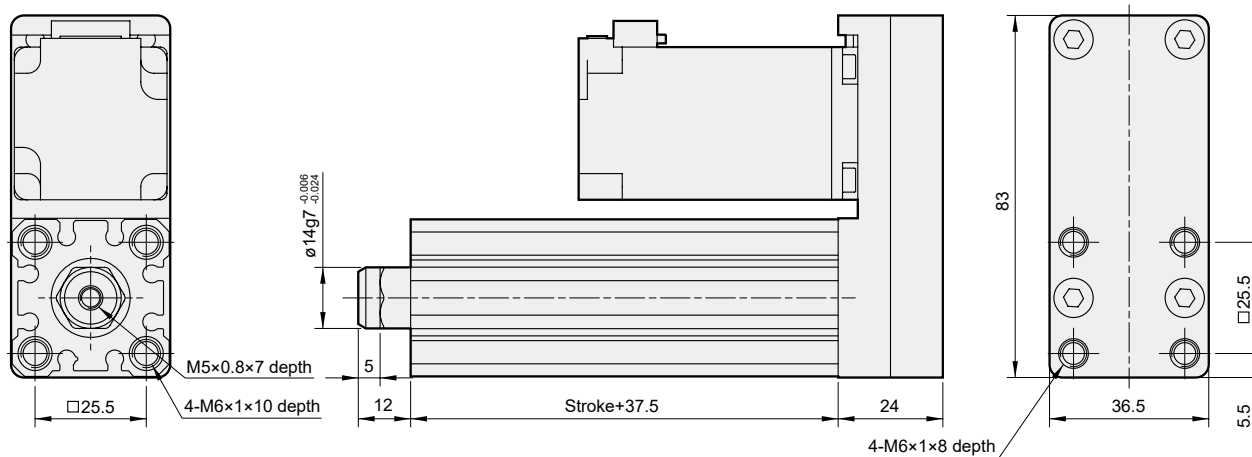
Stroke	SM motor				BM motor			
Size	30	50	75	100	30	50	75	100
16	0.42	0.46	0.50	0.54	0.35	0.39	0.43	0.47
20	0.50	0.56	0.62	0.69	0.59	0.65	0.71	0.78

BA Motor Turned

Size 16



Size 20



Weight

Unit: kg

Stroke Size	SM motor				BM motor			
	30	50	75	100	30	50	75	100
16	0.48	0.52	0.56	0.6	0.41	0.45	0.49	0.53
20	0.58	0.64	0.7	0.77	0.67	0.73	0.79	0.86

MESS2 series

MINIATURE ELECTRIC CYLINDER (WITH MOTOR)



Selector table



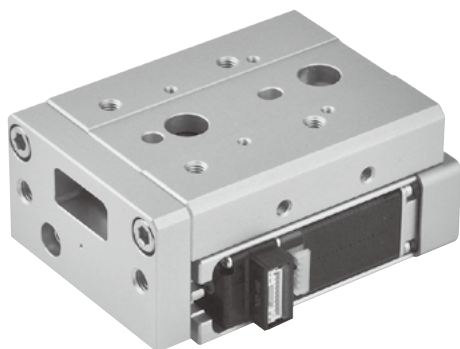
Applications



Motor selection



Controller



Specification

Model		MESS2		
Size		16	25	
Positioning repeatability (mm)		±0.02		
Lead (mm)		2	2	8
Maximum speed *1	Motor SM/ BM (mm/s)	≤50	≤100	≤400
	Motor OBM (mm/s)	≤50		≤200
Rated load *2	Horizontal (kg)	3	6	1.5
	Vertical (kg)	0.8	1.8	0.8
Max. thrust *1,3,4 (N)		18 ~ 60	64 ~ 195	18 ~ 48
Stroke (mm)		30 / 50 / 75 / 100		
Motor size (mm)		□20	□28	
Rated voltage		DC 24V±10%		
Slot-type photomicro sensor		RLT 		

Motor type Step motor

Transmission Ball screw + Belt

Environment Standard

Guide type Cross roller guide

*1. The speed and thrust may change depending on the cable length, load, stroke and mounting conditions.

*2. The rated load capacity decreases as the speed increases.

*3. The accuracy of max. thrust is ± 20%.

*4. Max. thrust for MESS2 is from 30% ~ 90%.

Order example

MESS2 – 16 L02 – 30 – CK10 03 N 015

Model

Size	Ball screw lead
16	L02 2 mm
25	L02 2 mm
	L08 8 mm

Stroke
30 30 mm
50 50 mm
75 75 mm
100 100 mm

I/O type

N	NPN
---	-----

* Not suitable for CM10.

I/O cable length

015	1.5 m (standard)
03	3 m

* Not suitable for CM10.

Motor + Encoder cable

Controller	Motor
CK10	SM
CM10 *1	OBM
CM20 *1	BM

*1. Sensors would be needed.

*2. Only for CM10/ CM20.

*3. Only for CK10.

Slot-type photomicro sensor set

RZ – ET1 – 10 – N

Sensor set

Sensor type

N	NPN
P	PNP

* With RLT sensor, bolt, nut and cable 2m.

Accessory kits

AK – ES1 – 16 – 30

Accessory kits

Size

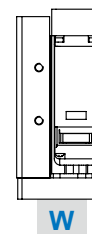
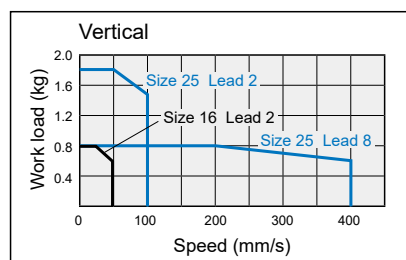
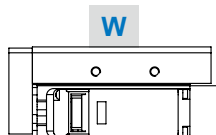
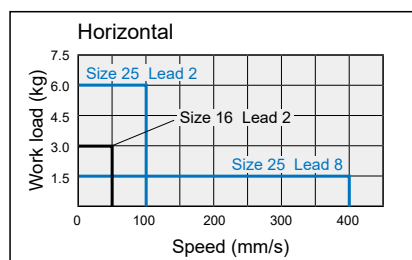
16
25

Stroke

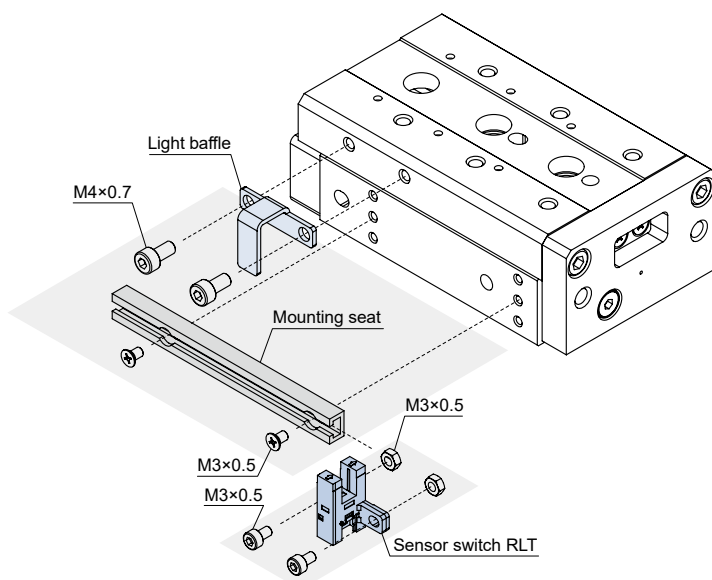
30	30 mm
50	50 mm
75	75 mm
100	100 mm

* With light baffle, mounting seat, bolt and nut.

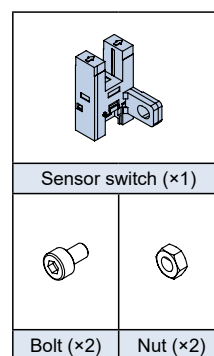
Speed-load curve diagram



Slot-type photomicro sensor mounting

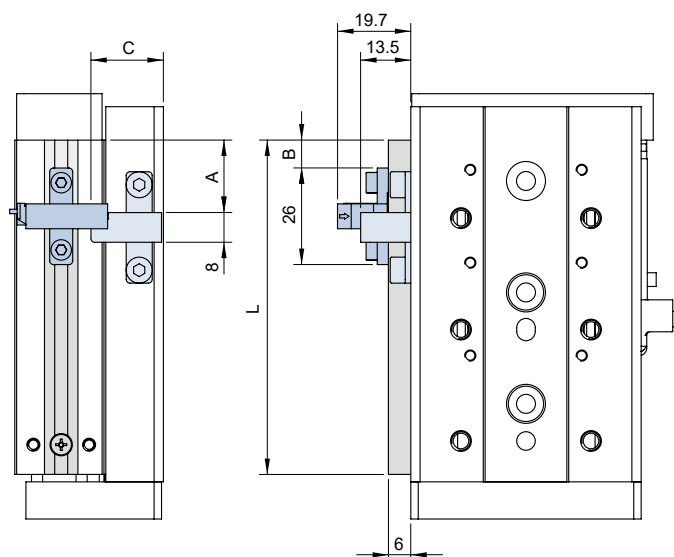
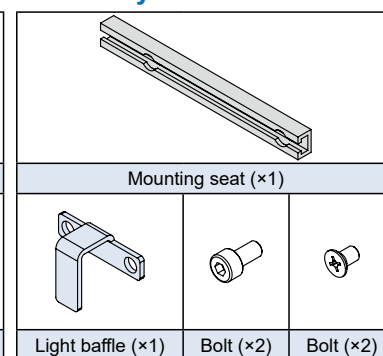


Sensor set



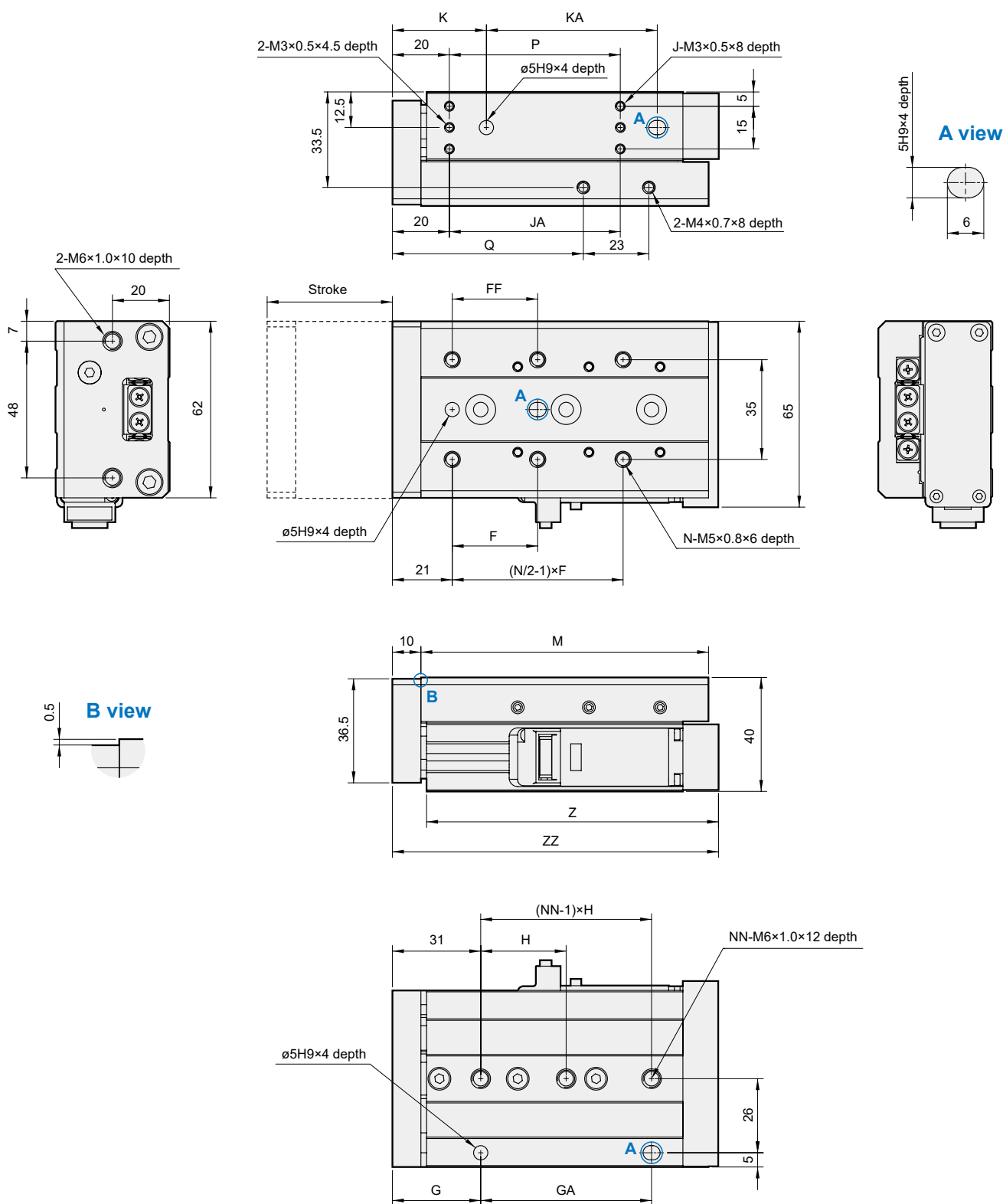
* With cable 2m.

Accessory kits



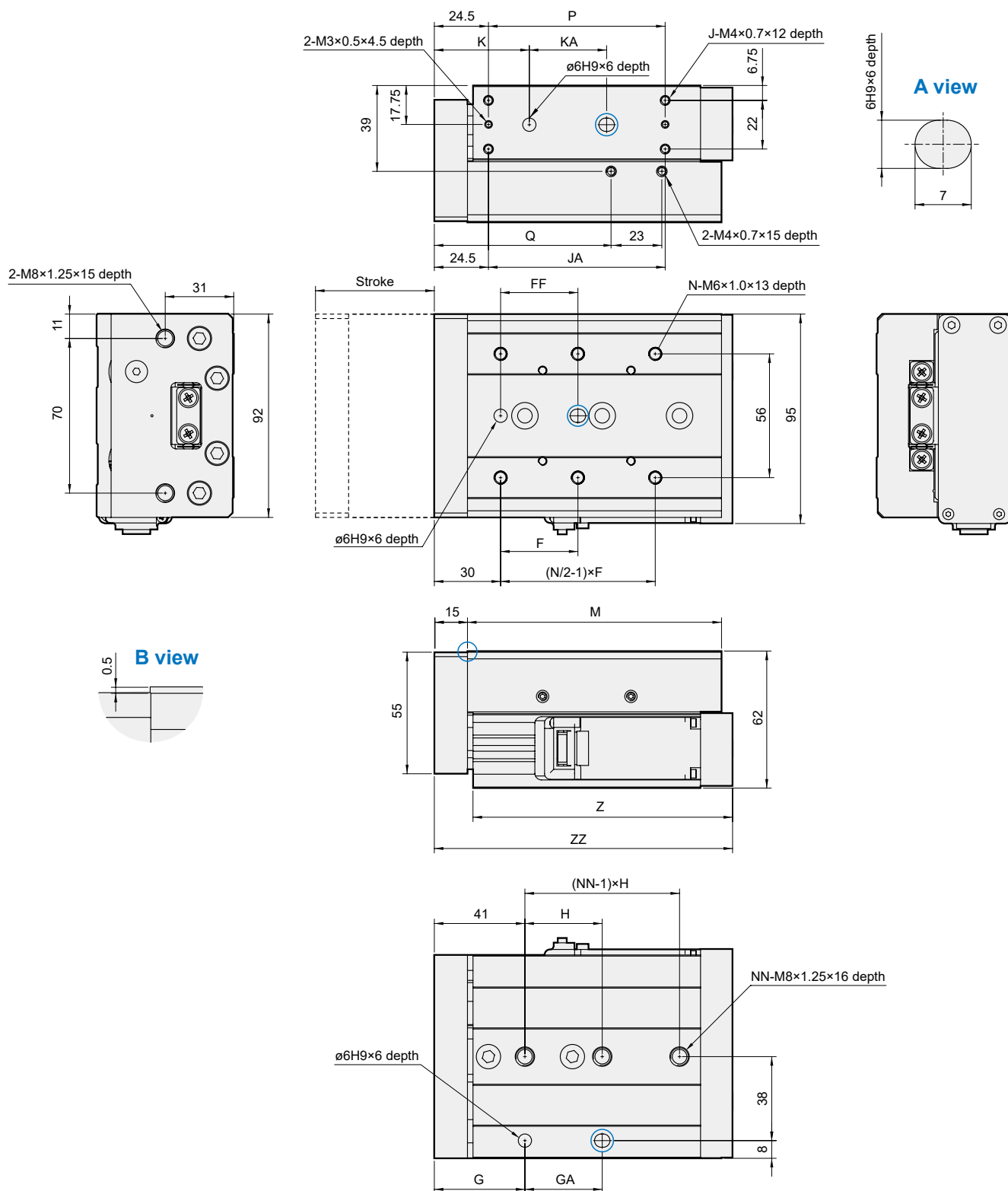
Sensor installed position reference

Code		A	B	C	L
Size	Stroke				
16	30	14.5	2.5	19.5	65
	50	19.5	7.5		90
	75	22.5	10.5		140
	100	25.5	13.5		188
25	30	22	10	36	80
	50	25	13		103
	75	35	23		144
	100	53	41		185



Unit: mm

Stroke	F	FF	G	GA	H	J	JA	K	KA	M	N	NN	P	Q	Z	ZZ	Weight (g)
30	35	35	27	40	40	4	40	29	40	76	4	2	40	47	77.5	89.5	641
50	30	30	31	60	30	4	60	33	60	101	6	3	60	67	102.5	114.5	840
75	55	55	31	70	35	6	60	33	70	151	6	4	120	114	152.5	164.5	1172
100	65	65	31	70	35	6	75	33	70	199	6	5	150	159	200.5	212.5	1503



Unit: mm

Stroke	F	FF	G	GA	H	J	JA	K	KA	M	N	NN	P	Q	Z	ZZ	Weight (g)
30	50	40	30.5	45	45	4	40	32.5	45	92	4	2	40	60	94.5	112	1743
50	35	35	41	35	35	4	80	43	35	115	6	3	80	80	117.5	135	2030
75	60	60	41	70	35	6	120	43	70	156	6	4	120	111	158.5	176	2680
100	70	70	41	70	35	6	160	43	70	197	6	5	160	134	199.5	217	3380

MESF2 series

MINIATURE ELECTRIC CYLINDER (WITH MOTOR)



Mindman



Selector table



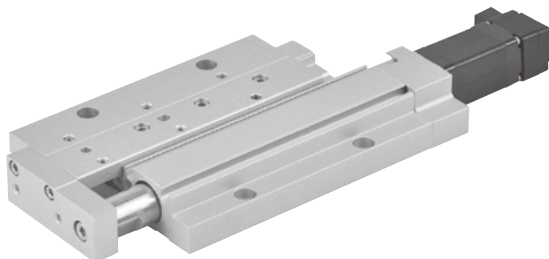
Applications



Motor selection



Controller



Motor type	Step motor	Transmission	Ball screw
Environment	Standard	Guide type	Cross roller guide

Specification

Model		MESF2		
Size		16	20	
Positioning repeatability (mm)		±0.02		
Lead (mm)		2	2	8
Maximum speed *1	Motor SM/ BM (mm/s)	≤50	≤100	≤400
	Motor OBM (mm/s)	≤50		≤200
Rated load *2	Horizontal (kg)	3	6	1.5
	Vertical (kg)	0.8	1.8	0.8
Max. thrust *1,3,4 (N)		18 ~ 60	64 ~ 195	18 ~ 48
Stroke (mm)		30 / 50 / 75	30 / 50 / 75 / 100	
Motor size (mm)		□20	□25	
Rated voltage		DC 24V±10%		
Sensor switch		RDC(V), RQC(V) 		

*1. The speed and thrust may change depending on the cable length, load, stroke and mounting conditions.

*2. The rated load capacity decreases as the speed increases.

*3. The accuracy of max. thrust is ± 20%.

*4. Max. thrust for MESF2 is from 30% ~ 90%.

Order example

MESF2 – 16 L02 – 30 – CK10 03 N 015

Model
MESF2

Size	Ball screw lead
16	L02 2 mm
20	L02 2 mm
	L08 8 mm

Stroke
30 30 mm
50 50 mm
75 75 mm
100* 100 mm

* Only for size 20

Controller	Motor
CK10 *4	SM
CM10 *1	OBM
CM20 *1	BM

I/O type
N NPN

* Not suitable for CM10.

I/O cable length
015 1.5 m (standard)
03 3 m

* Not suitable for CM10.

Motor + Encoder cable
01 1 m *2
015 1.5 m *3
03 3 m (standard)
05 5 m

*1. Sensors would be needed.

*2. Only for CM10 / CM20.

*3. Only for CK10.

*4. Only for size 16.

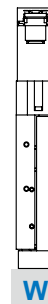
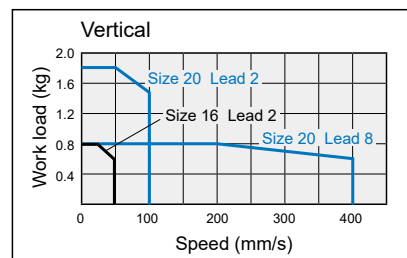
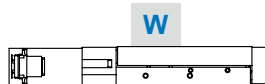
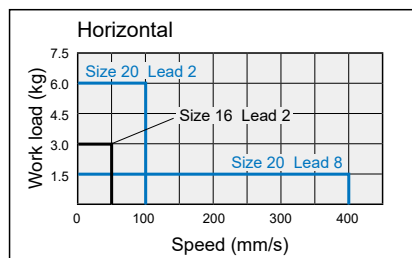
Accessory kits

AK – ES2 – 30	
Accessory kits	Stroke
	30
	50
	75
	100

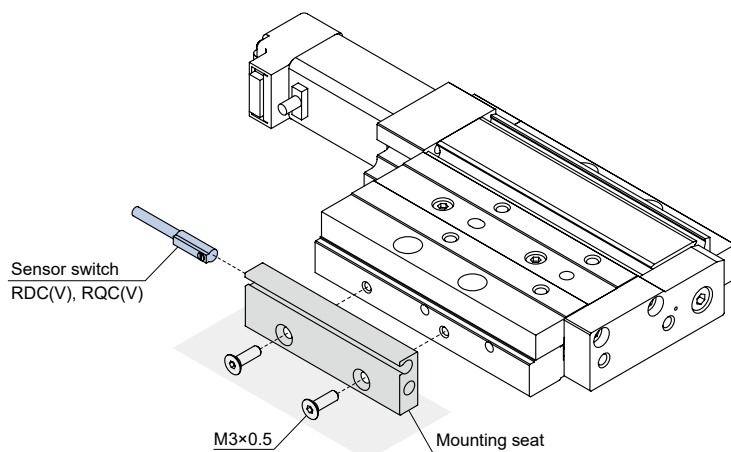
*1. Only for size 20.

*2. With mounting seat and bolt.

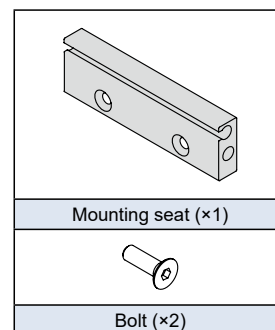
Speed-load curve diagram

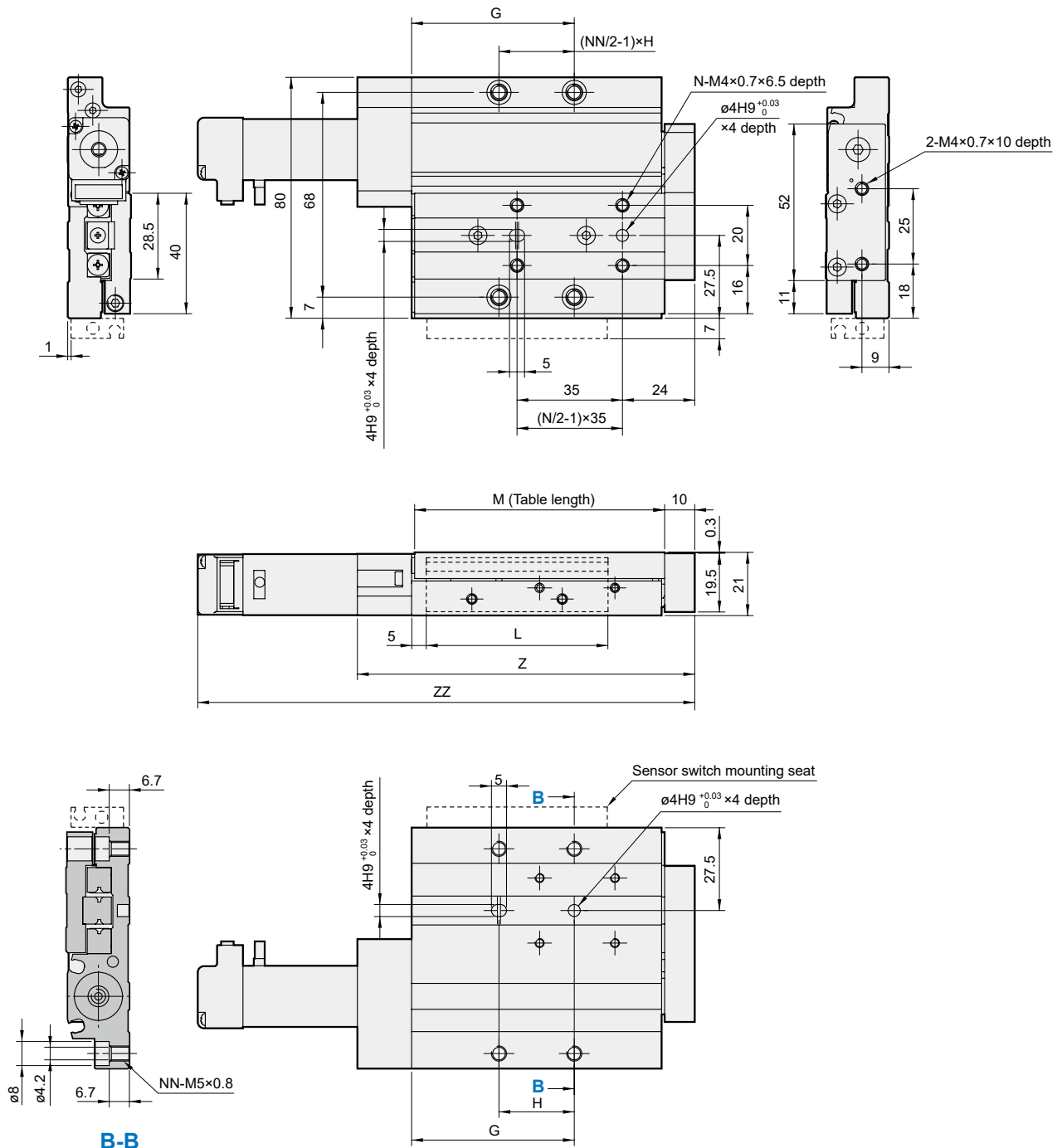


Sensor switch mounting

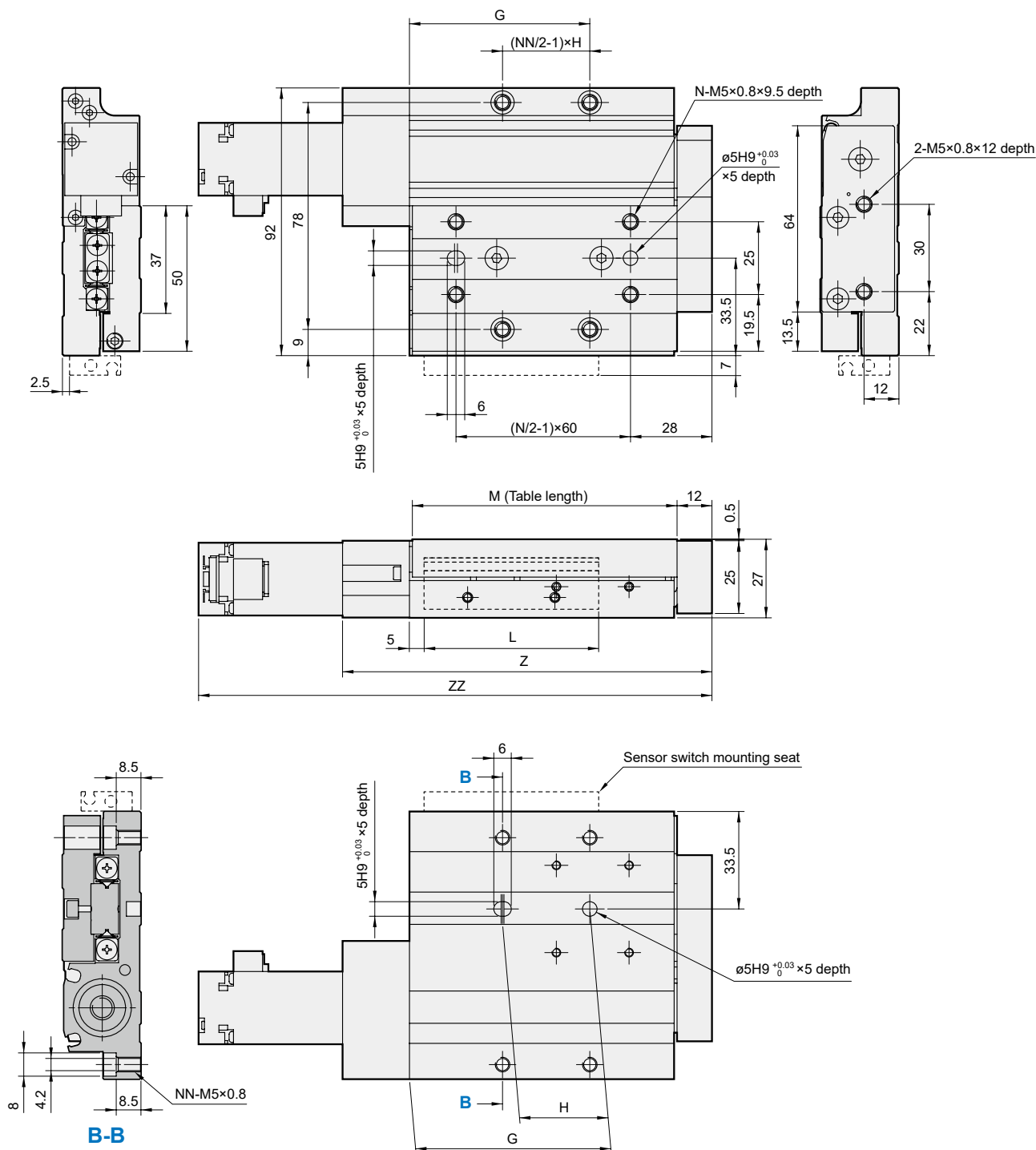


Accessory kits





Stroke	N	NN	G	H	L	M	Z	ZZ			Weight (g)
								CK10	CM10	CM20	
30	4	4	54	25	60	83	112	165	158	168	516
50	6	4	84	55	90	113	142	195	188	198	691
75	6	6	120	45	135	159	188	241	234	244	910



Stroke	N	NN	G	H	L	M	Z	ZZ			Weight (g)
								CK10	CM10	CM20	
30	4	4	62	30	60	91	127	-	166.5	176.5	933
50	4	4	77	45	90	113	149	-	188.5	198.5	1139
75	6	6	122	45	135	162	198	-	237.5	247.5	1397
100	6	6	152	60	160	211	247	-	286.5	296.5	1654

MESH2 series

MINIATURE ELECTRIC CYLINDER (WITH MOTOR)



Selector table



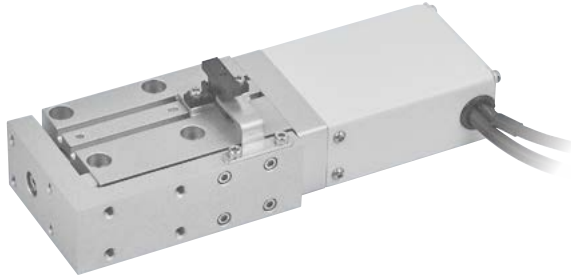
Applications



Motor selection



Controller



Motor type Step motor

Transmission Ball screw

Environment Standard

Guide type Linear guideway

Specification

Model		MESH2		
Size		16	20	
Positioning repeatability (mm)		±0.02		
Lead (mm)		2	2	8
Maximum speed *1	Motor SM/ BM (mm/s)	≤50	≤100	≤400
	Motor OBM (mm/s)	≤50		≤200
Rated load *2	Horizontal (kg)	3	6	1.5
	Vertical (kg)	0.8	1.8	0.8
Max. thrust *1,3,4 (N)		24 ~ 68	64 ~ 195	18 ~ 48
Stroke (mm)		30 / 50		
Motor size (mm)		□20	□28	
Rated voltage		DC 24V±10%		
Slot-type photomicro sensor		RLT 		

*1. The speed and thrust may change depending on the cable length, load, stroke and mounting conditions.

*2. The rated load capacity decreases as the speed increases.

*3. The accuracy of max. thrust is ± 20%.

*4. Max. force for MESH2 is from 30% ~ 90%.

Order example

MESH2 — 16 L02 — 30 — CK10 03 N 015

Model

Size	Ball screw lead
16	L02 2 mm
20	L02 2 mm
	L08 8 mm

Stroke

30	30 mm
50	50 mm

I/O type

N NPN

* Not suitable for CM10.

I/O cable length

015	1.5 m (standard)
03	3 m

* Not suitable for CM10.

Motor + Encoder cable

Controller	Motor
CK10	SM
CM10 *1	OBM
CM20 *1	BM

*1. Sensors would be needed.

*2. Only for CM10 / CM20.

*3. Only for CK10.

*4. Please note the installation space.

Slot-type photomicro sensor set

RZ — ES3 — 16 — N

Sensor set

Size

16
20

Sensor type

N	NPN
P	PNP

* With RLT sensor, mounting seat, bolt, nut and cable 2m.

Accessory kits

AK — ES3 — 16

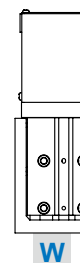
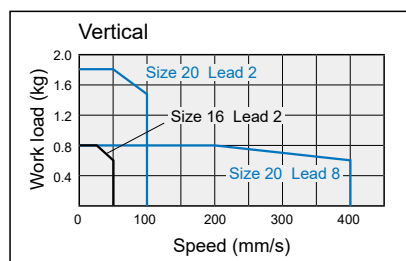
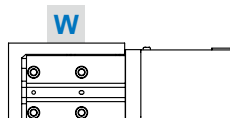
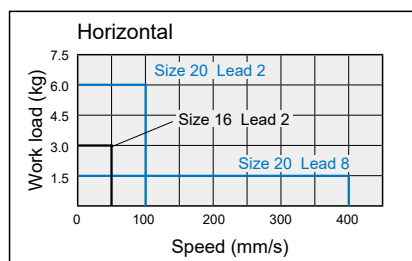
Accessory kits

Size

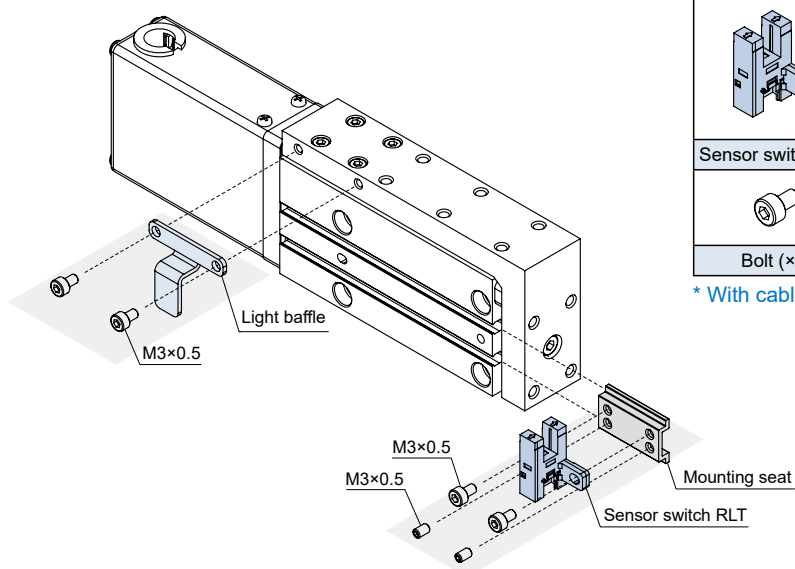
16
20

* With light baffle and bolt.

Speed-load curve diagram



Slot-type photomicro sensor mounting



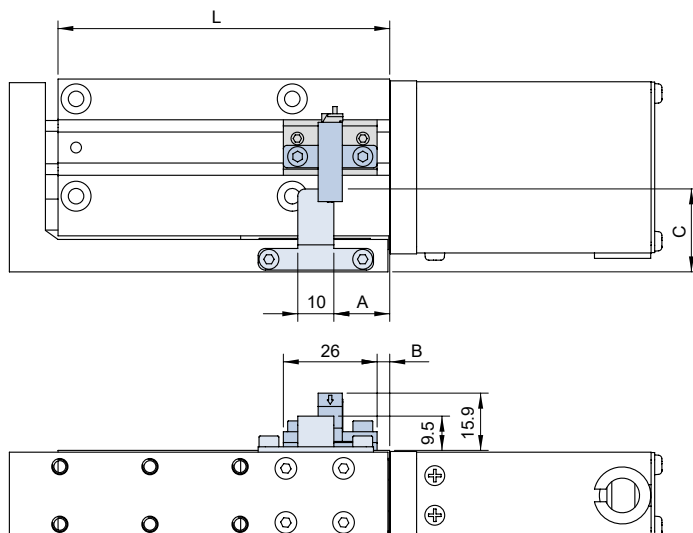
Sensor set

Sensor switch (×1)	Mounting seat (×1)
Bolt (×2)	Bolt (×2)

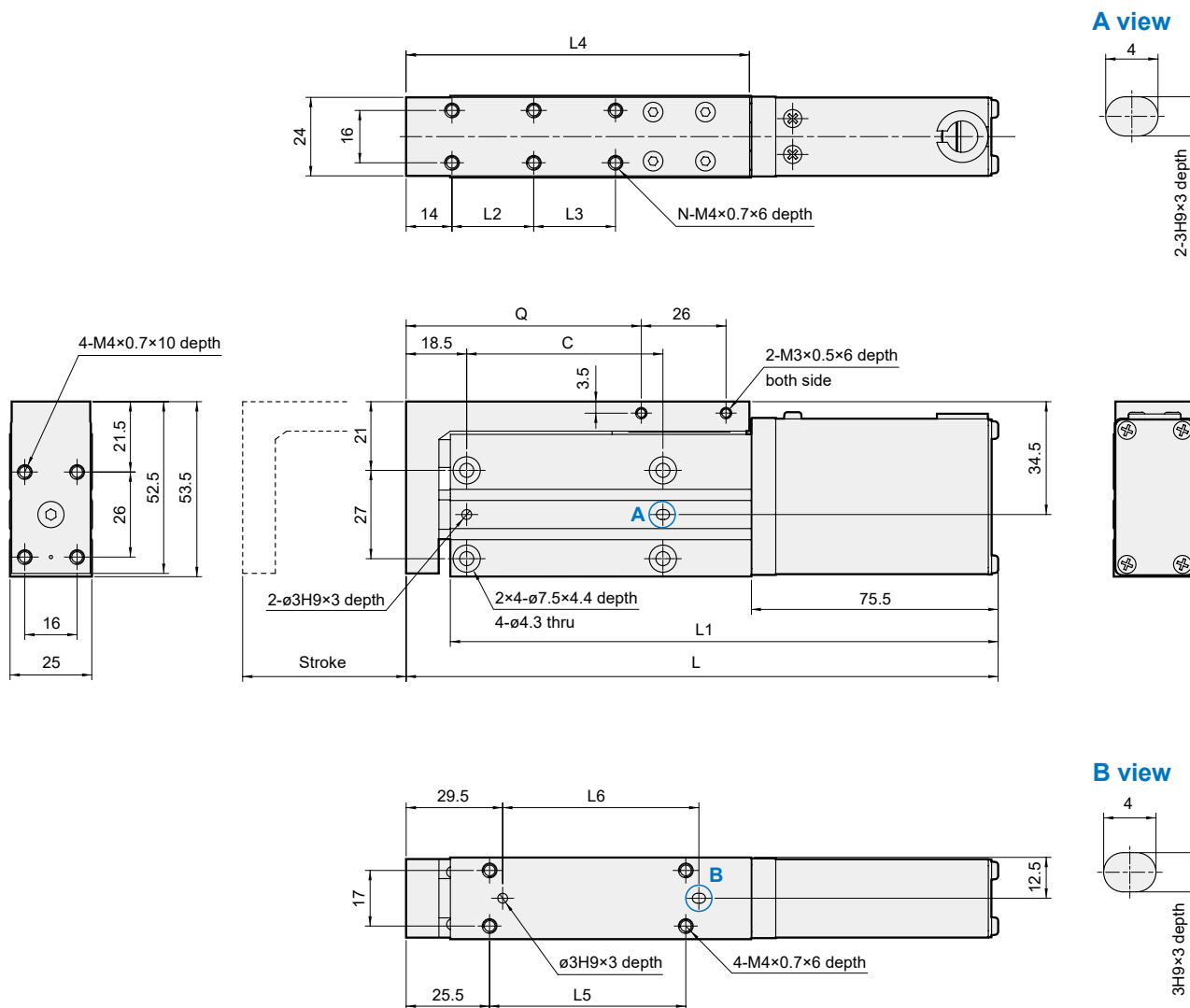
* With cable 2m.

Accessory kits

Light baffle (×1)
Bolt (×2)

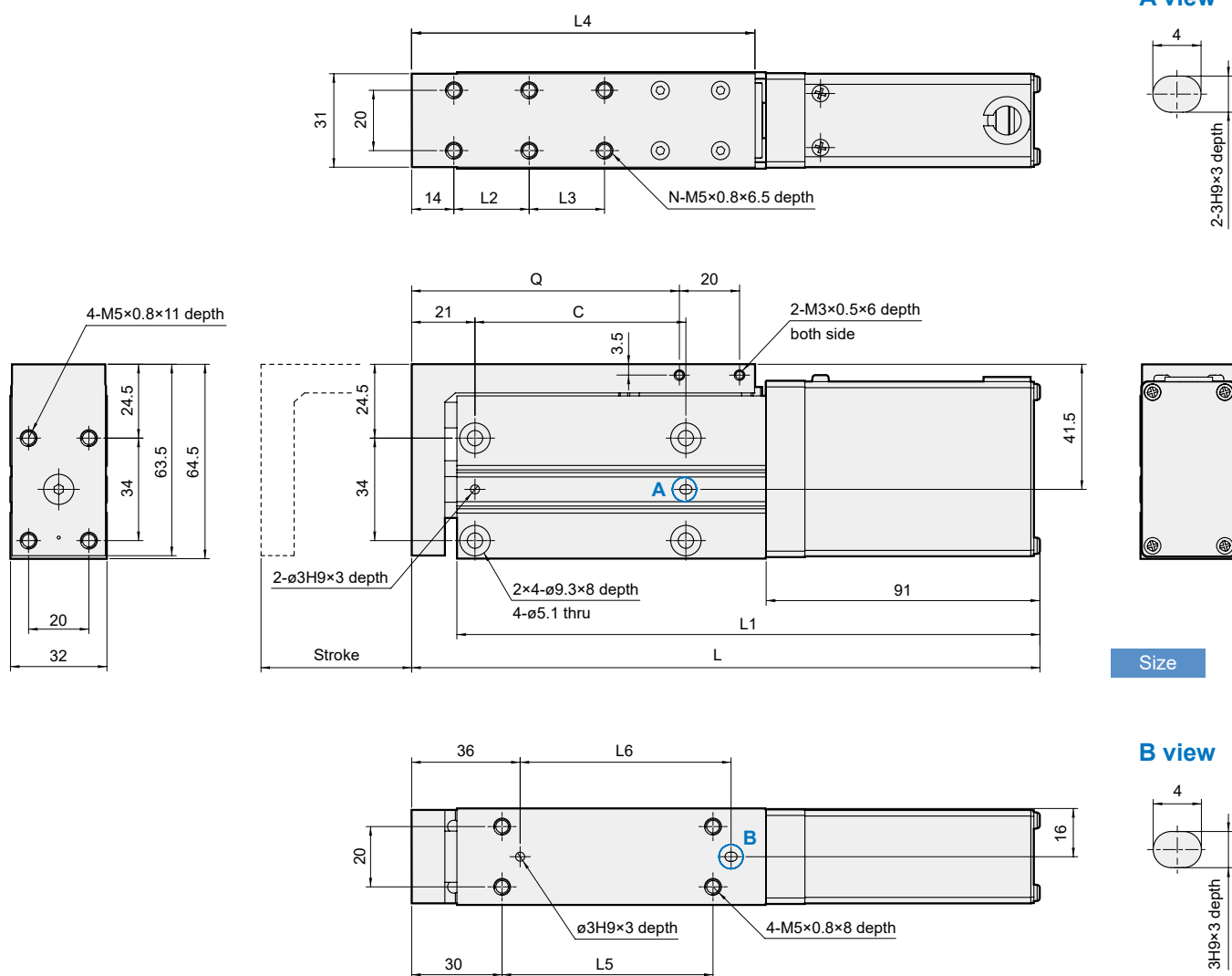


Code	A	B	C	L	
Stroke Size				30	50
16	15.5	3.5	23	72	92
25	13.5	1.5	31	82.5	102.5



Unit: mm

Stroke	C	L	L1	L2	L3	L4	L5	L6	N	Q	Weight (g)
30	40	161	147.5	30	—	85	40	40	4	52	500
50	60	181	167.5	25	25	105	60	60	6	72	562



Unit: mm

Stroke	C	L	L1	L2	L3	L4	L5	L6	N	Q	Weight (g)
30	40	188.5	173.5	30	—	97	40	40	4	69	950
50	70	208.5	193.5	25	25	114	70	70	6	89	1049

MERE series

ELECTRIC ROTARY ACTUATOR (WITH MOTOR)



Mindman



Selector table



Applications



Motor selection



Controller



Specification

Model	MERE		
Size	10	30	50
Rotation angle (°)	310, 360	320, 360	
Lead (°)	12		
Max. rotating torque *1,3,4 (N·m)	0.3	0.65	3.3
Max. moment of inertia (kg·m ²)	0.0018	0.015	0.05
Max. angular speed *1,2 (°/s)	≤420		
Max. angular acceleration/ deceleration (°/s ²)	3000		
Backlash (°)	±0.5	±0.3	
Positioning repeatability (°)	±0.05		
Max. operating frequency (cpm)	60		
Motor size (mm)	□20	□28	□42
Rated voltage	DC 24V±10%		
Sensor switch	RJF 		
Weight (kg)	0.47	1.1	3

*1. The angular speed and rotating torque may change depending on the cable length, load, stroke and mounting conditions.

*2. The max. angular speed is 30°/s with push motion function.

*3. The torque accuracy is ±20%.

*4. The range of rotating torque is 30% ~ 90%.

Order example

Model

Size

Rotation angle

Controller

Motor

I/O type

I/O cable length

Motor + Encoder cable

10

30

50

1

2

1

2

310°

360°

320°

360°

CK10

CM20 *1

SM

BM

N

NPN

015

03

1.5 m (standard)

3 m

01

015

03

05

1 m *2

1.5 m *3

3 m (standard)

5 m

MERE

30

1

CK10

03

N

015

—

—

—

—

—

—

*1. Sensors would be needed.

*2. Only for CM20.

*3. Only for CK10.

*1. Sensors would be needed.

*2. Only for CM20.

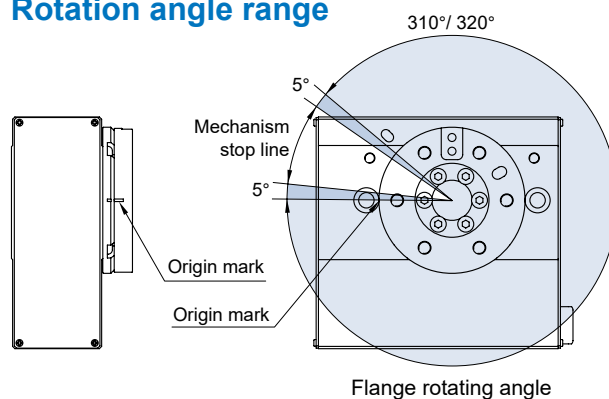
*3. Only for CK10.

Accessory kits

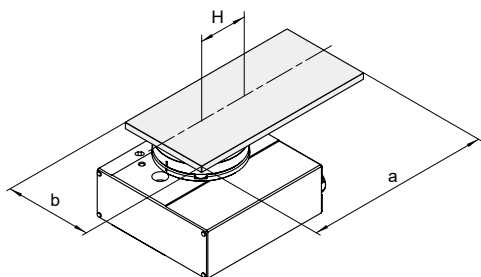
AK — ER1 — 30		
Accessory kits		Size
		10
		30
		50

* With sensing sheet, mounting seat and bolt.

Rotation angle range



Operating conditions



Electric rotary actuator	MERE-30
Installation direction	Horizontal
Load type	Inertial load T_a
Configuration of load	150×80 mm (Rectangular plate)
Rotation angle	180° θ
Angular acceleration / deceleration	1000°/sec ² ω
Angular speed	420°/sec ω
Load mass	2 kg m
Distance between shaft and center of gravity	40mm H

Step 1: Moment of inertia – Angular acceleration / deceleration

1. Calculate moment of inertia

2. Check the angular acceleration / deceleration

Confirm the setting range from the <Angular Acceleration / Deceleration - Moment of Inertia graph>.

Formula

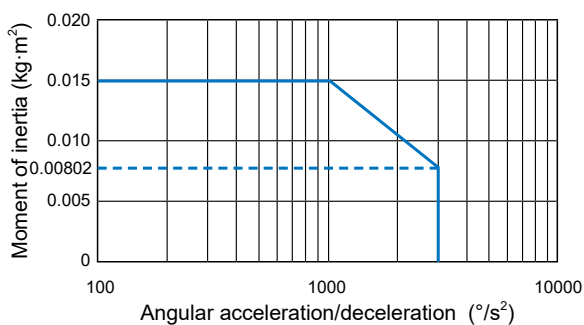
$$I = m \times (a^2 + b^2) / 12 + m \times H^2$$

Selection example

$$I = 2 \times (0.15^2 + 0.08^2) / 12 + 2 \times 0.04^2$$

$$= 0.00802 \text{ kg} \cdot \text{m}^2$$

→ Angular acceleration / deceleration 1000°/sec² OK



Step 2: Necessary torque

* Please refer to "Load type" .

1. Load type

- Static load T_s
- Resistance T_f
- Inertial load T_a

2. Check the effective torque

Confirm the setting range from the <Angular Speed – Torque graph>.

Formula

$$\text{Effective torque} \geq T_s$$

$$\text{Effective torque} \geq T_f \times 1.5$$

$$\text{Effective torque} \geq T_a \times 1.5$$

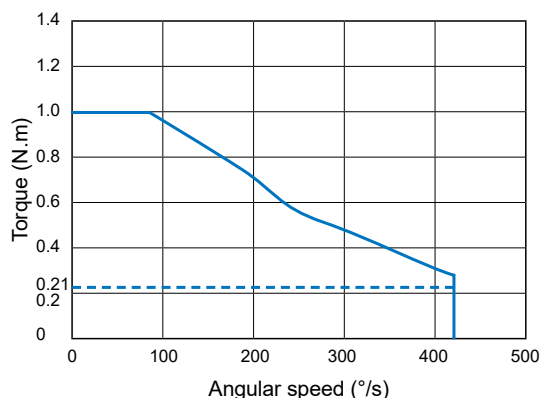
Selection example

Inertial load: T_a

$$T_a \times 1.5 = I \times \omega \times 2\pi / 360 \times 1.5$$

$$= 0.00802 \times 1000 \times 0.0175 \times 1.5$$

$$= 0.21 \text{ N} \cdot \text{m} \rightarrow \text{Angular speed } 420^\circ/\text{sec}^2 \text{ OK}$$



Step 3: Allowable load

* Please refer to "Allowable load" .

1. Check the allowable load

- Radial load
- Thrust load
- Moment

Formula

$$\text{Allowable thrust load} \geq m \times 9.8$$

$$\text{Allowable moment} \geq m \times 9.8 \times H$$

Selection example

· Thrust load

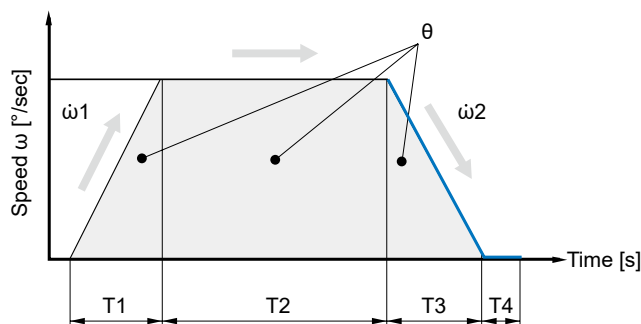
$$2.0 \times 9.8 = 19.6 \text{ N} < \text{Allowable thrust load OK}$$

· Allowable moment

$$2.0 \times 9.8 \times 0.04 = 0.784 \text{ N} \cdot \text{m} < \text{Allowable moment OK}$$

Step 4: Rotation time

1. Calculate cycle time (rotation time)



θ	Rotation angle	[°]	
ω	Angular speed	[°/sec]	
$\dot{\omega}1$	Angular acceleration	[°/sec ²]	
$\dot{\omega}2$	Angular deceleration	[°/sec ²]	
T1	Acceleration time	[s]	Time until reaching the set speed
T2	Constant speed time	[s]	Time while the actuator is operating at a constant speed
T3	Deceleration time	[s]	Time from the beginning of the constant speed operation to stop
T4	Settling time	[s]	Time until positioning is completed

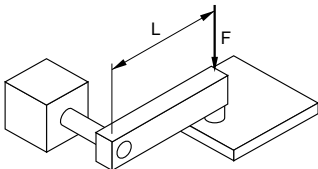
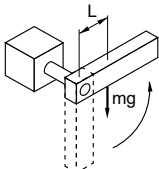
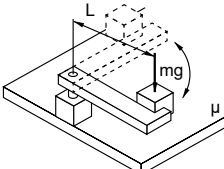
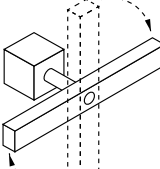
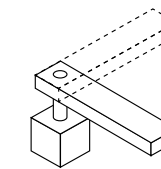
Formula

Angular acceleration time $T1 = \omega / \dot{\omega}1$
 Constant speed time $T2 = \{ \theta - 0.5 \times \omega \times (T1 + T3) \} / \omega$
 Angular deceleration time $T3 = \omega / \dot{\omega}2$
 Settling time $T4 = 0.2 \text{ (sec)}$
 Cycle time $T = T1 + T2 + T3 + T4$

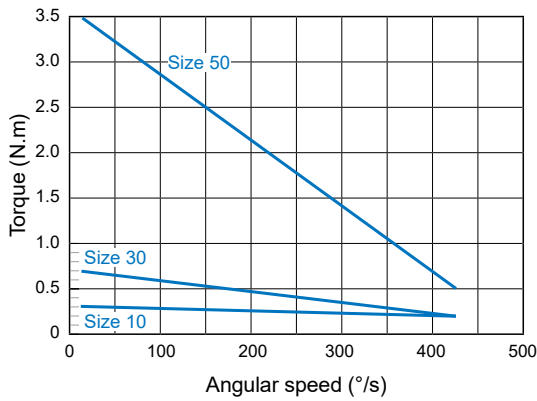
Selection example

Angular acceleration time $T1 = 420 / 1000 = 0.42 \text{ sec}$
 Constant speed time $T2 = \{ 180 - 0.5 \times 420 \times (0.42 + 0.42) \} / 420 = 0.009 \text{ sec}$
 Angular deceleration time $T3 = 420 / 1000 = 0.42 \text{ sec}$
 Cycle time $T = T1 + T2 + T3 + T4 = 0.42 + 0.009 + 0.42 + 0.2 = 1.049 \text{ sec}$

Load type

Load type		
Static load: Ts	Resistance load: Tf	Inertial load: Ta
When force is applied for pressurization. (e.g. for clamping)	Resistance to gravity or friction is required during rotation.	Rotate the load with inertia.
	<Gravity>  <Friction> 	Center of rotation and center of gravity of the load are concentric  Rotation shaft is vertical (up and down) 
$Ts = F \cdot L$ Ts: Static load (N.m) F: Clamping force (N) L: Distance from the rotation center to the clamping position (m)	Gravity needs to be resisted when rotating. $Tf = m \cdot g \cdot L$ Tf: Resistance (N.m) m: Load mass (kg) g: Gravitational acceleration 9.8(m/s²) L: Distance from the rotation center to the point of application of the gravity or friction force (m) μ: Friction coefficient	$Ta = I \cdot \dot{\omega} \cdot 2\pi / 360$ ($Ta = I \cdot \dot{\omega} \cdot 0.0175$) Ta : Inertial load (N.m) I : Moment of inertia (kg·m²) $\dot{\omega}$: Angular acceleration/deceleration (°/sec²) ω : Angular speed (°/sec)
Necessary torque: $T = Ts$	Necessary torque: $T = Tf \times 1.5^{*1}$	Necessary torque: $T = Ta \times 1.5^{*1}$
• Resistance load: Gravity or friction needs to be resisted during rotating. Ex.1) The rotation shaft is horizontal (lateral), and the rotation center and the center of gravity of the load are not concentric. Ex.2) The load moves by sliding on the floor * The total of resistance load and inertial load is the necessary torque. $T = (Tf + Ta) \times 1.5$	• Non-resistance load: Neither gravity nor friction needs to be resisted during rotation. Ex.1) The rotation shaft is vertical (up and down). Ex.2) The rotation shaft is horizontal (lateral), and rotation center and the center of gravity of the load are concentric. * The necessary torque is solely due to inertial load. $T = Ta \times 1.5$ *1. To adjust the speed, a reserved margin is required for Tf and Ta.	

Angular speed – Torque



Angular Acceleration / Deceleration – Moment of Inertia

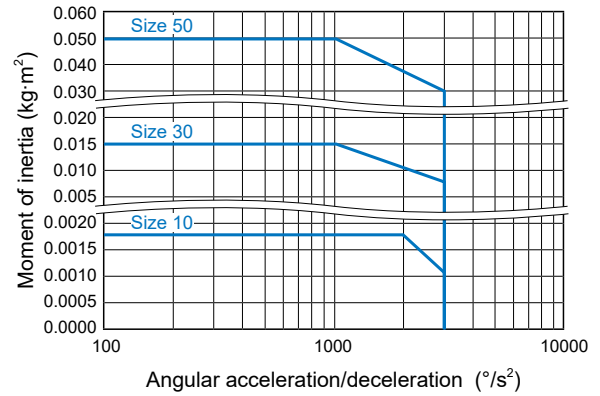
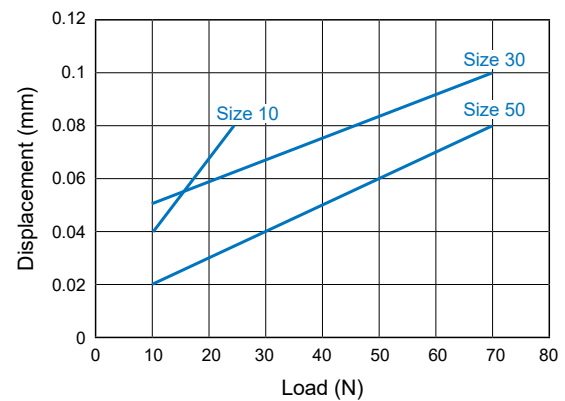
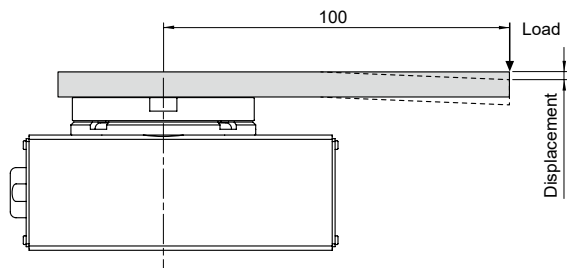
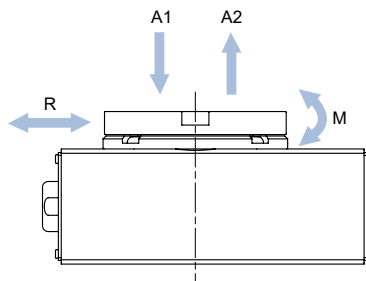


Table Displacement (Reference Value)

The displacement caused by applying a load 100 mm away from the center of rotation.

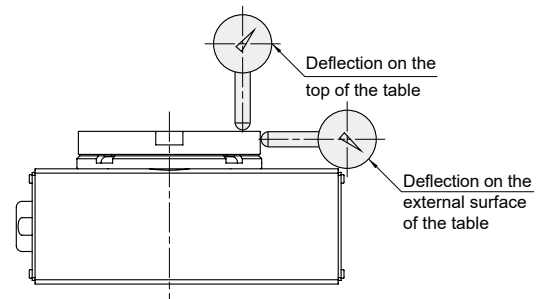


Allowable Load



Size	10	30	50
Allowable thrust load A1	78 N	363 N	398 N
Allowable thrust load A2	74 N	197 N	296 N
Allowable radial load R	78 N	196 N	314 N
Allowable moment M	2.4 N.m	5.3 N.m	9.7 N.m

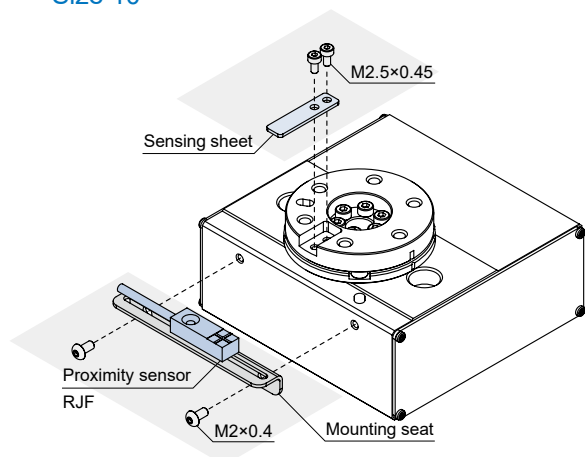
Deflection Accuracy (Reference Value)



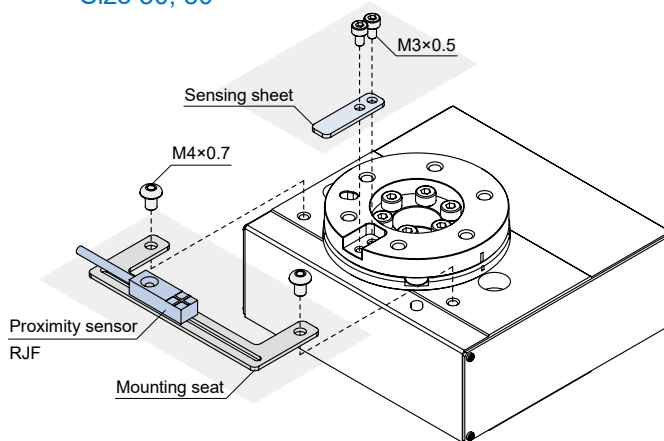
Max. deflection at 360° rotation	
Deflection on the top of the table	0.05 mm
Deflection on the external surface of the table	0.05 mm

Proximity sensor mounting

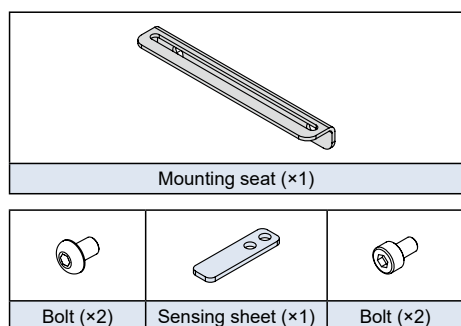
Size 10



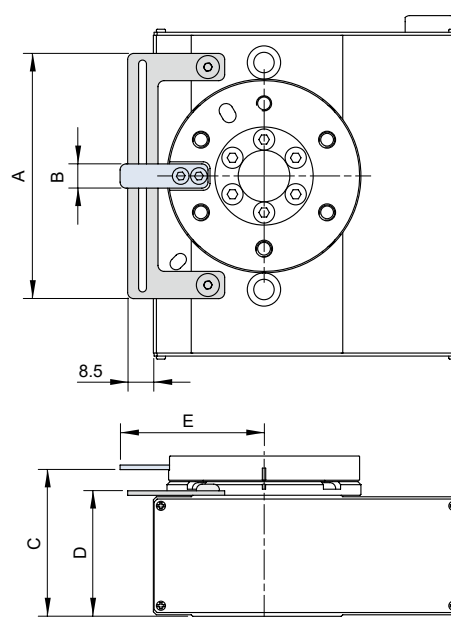
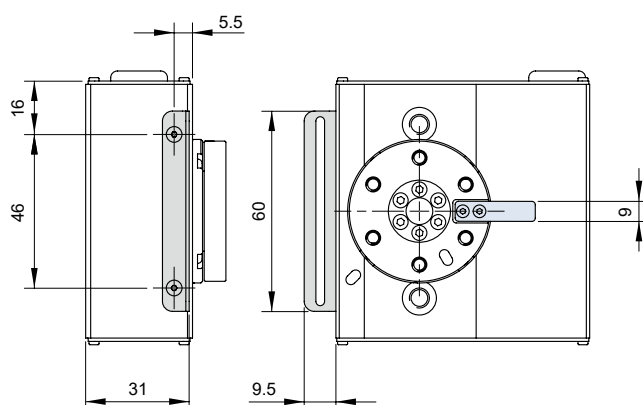
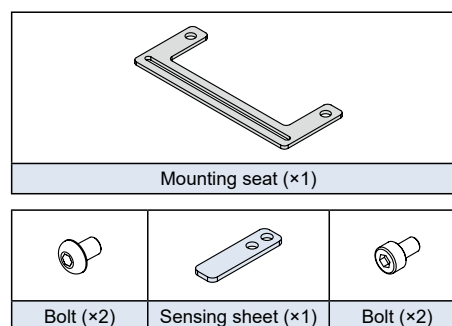
Size 30, 50



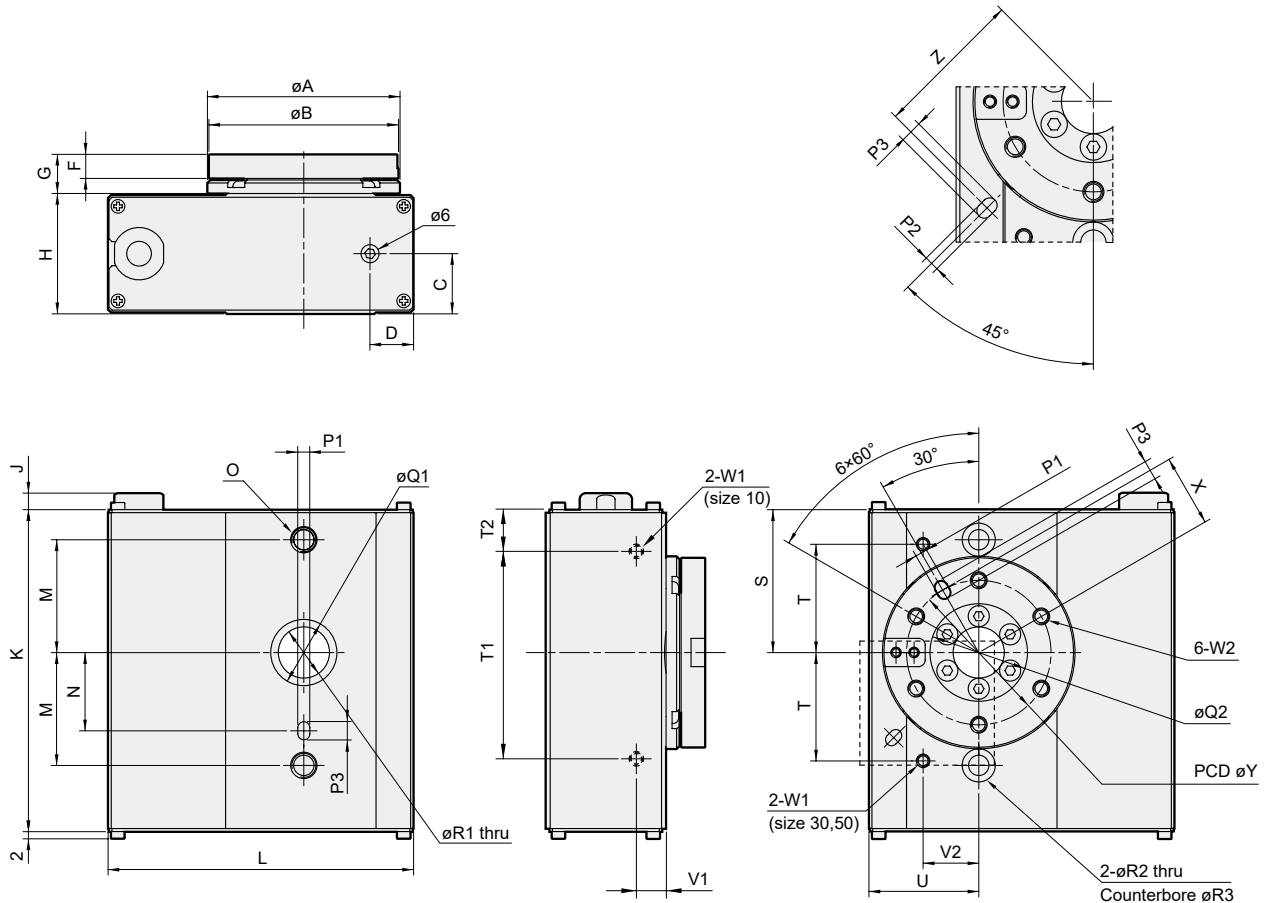
Accessory kits



Accessory kits



Code Size	A	B	C	D	E
30	81	8	48.5	41.5	47.5
50	100	10	63	54	57.5



Code Size	A	B	C	D	F	G	H	J	K	L	M	N	O	P1
10	$\phi 43 \text{ h8} \begin{smallmatrix} 0 \\ -0.039 \end{smallmatrix}$	$\phi 42 \text{ h8} \begin{smallmatrix} 0 \\ -0.039 \end{smallmatrix}$	16	10.2	6.5	10	32	3	78	76	26	15	2-M6 $\times$ 1.0 $\times$ 12 depth	3H8 $\begin{smallmatrix} +0.014 \\ 0 \end{smallmatrix}$ $\times$ 4 depth
30	$\phi 64 \text{ h8} \begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	$\phi 63 \text{ h8} \begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	20	14.5	8	13	40	8	107	101.5	37.5	26	2-M8 $\times$ 1.25 $\times$ 16 depth	4H8 $\begin{smallmatrix} +0.018 \\ 0 \end{smallmatrix}$ $\times$ 5 depth
50	$\phi 76 \text{ h8} \begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	$\phi 74 \text{ h8} \begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	26	18.8	10	16	52	4	125	133	45	31	2-M10 $\times$ 1.5 $\times$ 20 depth	5H8 $\begin{smallmatrix} +0.018 \\ 0 \end{smallmatrix}$ $\times$ 5.5 depth

Code Size	P2	P3	Q1	Q2	R1	R2	R3	S	T	T1	T2	U
10	3H8 $\begin{smallmatrix} +0.014 \\ 0 \end{smallmatrix}$ $\times$ 3.8 depth	5	$\phi 15 \text{ H8} \begin{smallmatrix} +0.027 \\ 0 \end{smallmatrix}$ $\times$ 7 depth	$\phi 18 \text{ H8} \begin{smallmatrix} +0.027 \\ 0 \end{smallmatrix}$ $\times$ 3 depth	$\phi 8$	$\phi 5.2$	$\phi 9 \times 5.5$ depth	39	26	46	16	25
30	4H8 $\begin{smallmatrix} +0.018 \\ 0 \end{smallmatrix}$ $\times$ 4.8 depth	6	$\phi 22 \text{ H8} \begin{smallmatrix} +0.033 \\ 0 \end{smallmatrix}$ $\times$ 5 depth	$\phi 32 \text{ H8} \begin{smallmatrix} +0.039 \\ 0 \end{smallmatrix}$ $\times$ 2 depth	$\phi 17$	$\phi 6.8$	$\phi 11 \times 6.5$ depth	47.5	36	—	—	36.5
50	5H8 $\begin{smallmatrix} +0.018 \\ 0 \end{smallmatrix}$ $\times$ 5.3 depth	7	$\phi 26 \text{ H8} \begin{smallmatrix} +0.033 \\ 0 \end{smallmatrix}$ $\times$ 11 depth	$\phi 35 \text{ H8} \begin{smallmatrix} +0.039 \\ 0 \end{smallmatrix}$ $\times$ 4 depth	$\phi 20$	$\phi 8.5$	$\phi 14 \times 8.5$ depth	56	45	—	—	48

Code Size	V1	V2	W1	W2	X	Y	Z
10	5.5	—	M2.5 $\times$ 0.45 $\times$ 5 depth	M4 $\times$ 0.7 $\times$ 5 depth	16	$\phi 32$	28
30	—	18.5	M4 $\times$ 0.7 $\times$ 5 depth	M5 $\times$ 0.8 $\times$ 8 depth	24	$\phi 48$	40
50	—	26	M4 $\times$ 0.7 $\times$ 9 depth	M6 $\times$ 1.0 $\times$ 9 depth	27.5	$\phi 55$	46

MEHC2 series

ELECTRIC GRIPPER (WITH MOTOR)



Selector table



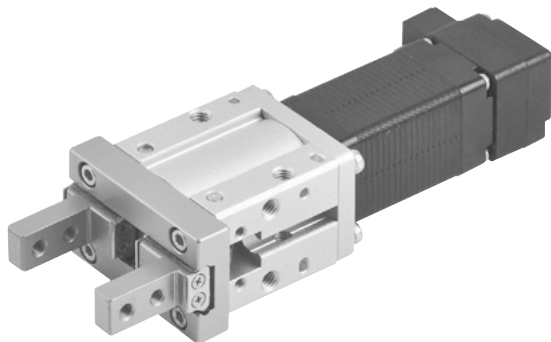
Applications



Motor selection



Controller



Specification

Model	MEHC2	
Size	16	25
Gripping force *1 (N)	19.5	26
Opening / Closing stroke *2 (mm)	6	14
Lead (mm)	1.5	
Stroke *2,3 (mm)	3.5	7.4
Positioning repeatability *4 (mm)	±0.02	
Motor size (mm)	□20	□28
Rated voltage	DC24 V ±10%	
Gripping mass *5 (kg)	0.4	0.8
Weight (g)	222	662

*1. Gripping force tolerance ± 20%.

*2. The opening/ closing stroke and the movement stroke of the nut are nonlinear.

*3. The operating stroke should be set within the range to avoid the screw getting locked.

*4. When under same procedure, the Positioning repeatability of workpiece.

*5. The gripping mass may change depending on the gripper attachments or friction coefficient.

Motor type Step motor

Transmission

Lead screw

Environment Standard

Guide type

Linear guideway

Order example

MEHC2 – 16 – N F – CK10 03 N 015

Model

Size

16

25

I/O type

N

NPN

I/O cable length

015

1.5 m (standard)

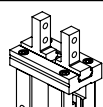
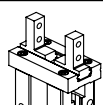
03

3 m

Spec. and type

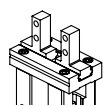
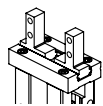
Blank: Standard

N: Narrow



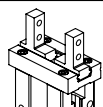
1: Standard (Side tapped)

N1: Narrow (Side tapped)

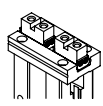


2: Standard (Through hole)

N2: Narrow (Through hole)

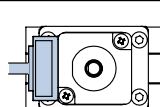


3: Flat

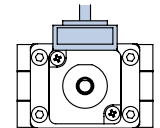


Motor cable entry

Blank: Parallel



F: Perpendicular



Controller

CK10

Motor

SM

Motor + Encoder cable

015

1.5 m

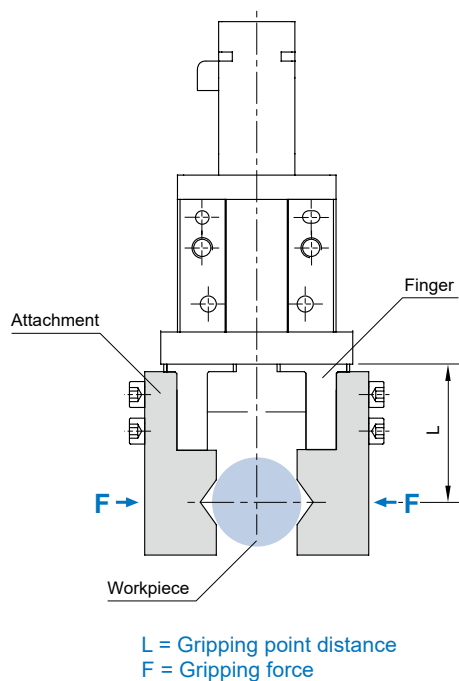
03

3 m (standard)

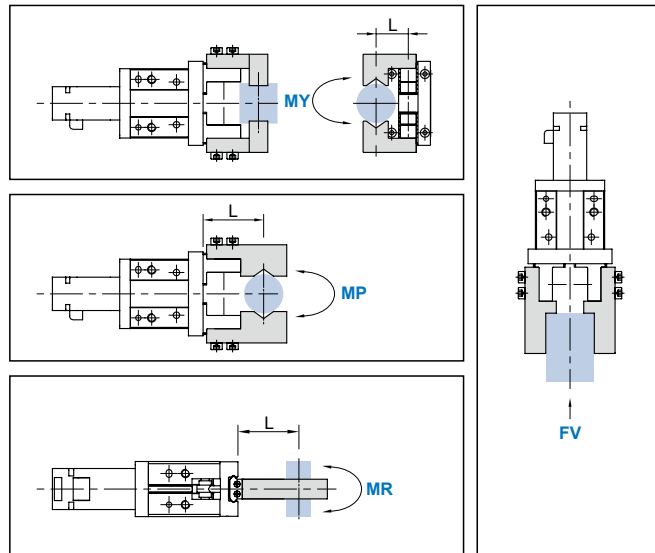
05

5 m

Evaluation of gripping force

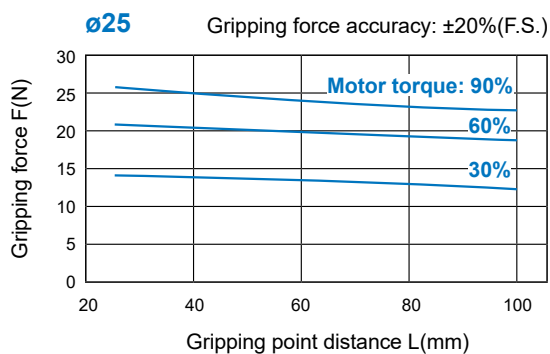
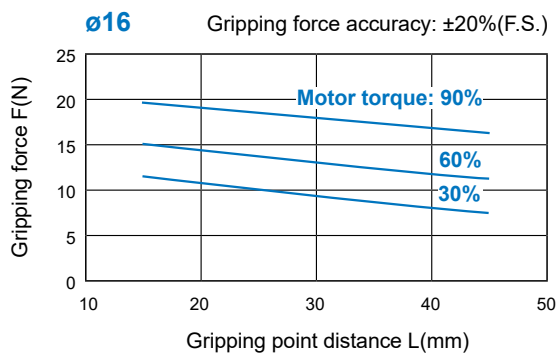


Allowable moment and force (N.m / N)



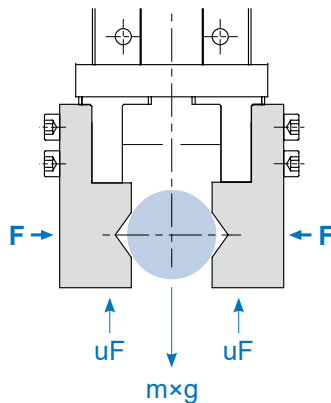
Model	MY	MP	MR	FV
	Max. moment (N.m)			Max. force (N)
MEHC2-16	0.68	0.68	1.36	98
MEHC2-25	1.94	1.94	3.88	255

Diagram



Model selection steps

1. Calculate the required gripping force according to the weight and the friction.
2. According to the required gripping force and the holding position : L, preselect suitable gripper models by comparing gripper performance charts.
3. According to the preselecting results, calculate the available load.



Gripping force calculation

the conditions for the workpiece not to drop is, $n \times uF > m \times g$

$$\text{Therefore, } F \geq \frac{m \times g}{n \times u}$$

$$\text{If the safety factor is "a", then F is } F \geq \frac{m \times g}{n \times u} \times a$$

F	Gripping force of single finger (N)
n	Number of finger
u	Coefficient of friction between the attachments and the workpiece
m	Workpiece mass (kg)
g	Gravitational acceleration (=9.8m/s ²)
a	Safety factor

*1. For normal gripping and carrying usage, the recommended safety factor "a" is 4.

*2. If the Coefficient of friction μ is unknown, calculate with $\mu = 0.1$

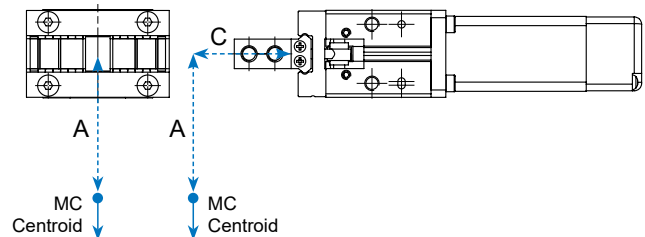
Available load calculation

$$\frac{MY_{real}}{MY} + \frac{MP_{real}}{MP} + \frac{MR_{real}}{MR} < 1$$

Model selection example

Condition:

The material of soft fingers and workpiece are aluminum.
Coefficient of friction is 1.15. The workpiece weight is 1.2 kg.
Holding position C is 30mm and A is 25 mm.

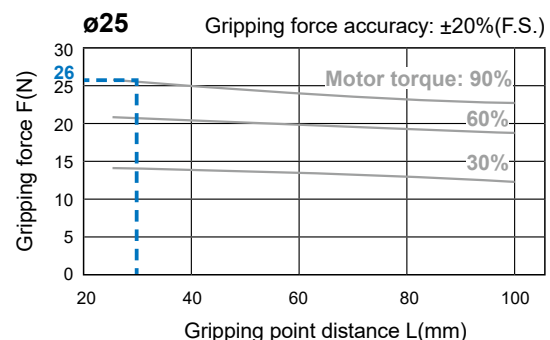
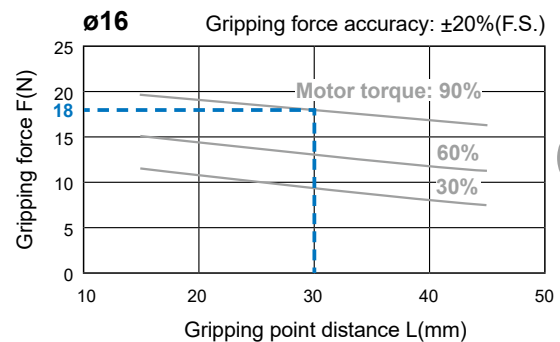


Step 1: Required gripping force calculation

$$F > \frac{mg}{nu} \times a \rightarrow F > \frac{1.2 \times 9.8}{2 \times 1.15} \times 4 = 20.45 \text{ N}$$

After calculation, the gripper must provide a gripping force greater than 20.45N.

Step 2: Compare the available gripping force



After comparison, the gripping force of MEHC2-25 meets the requirements.

Step 3: Calculate the available load

$$MR = 1.2 \times 9.8 \text{ N} \times 0.03 \text{ m} = 0.3528 \text{ N} \cdot \text{m}$$

MY = None

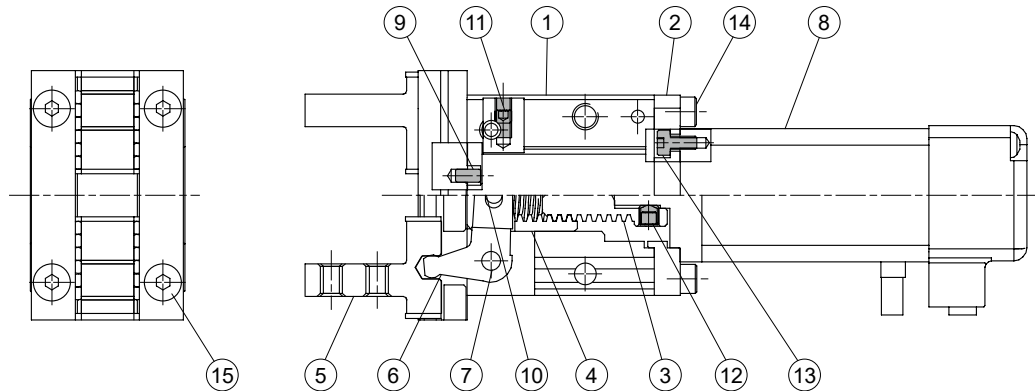
MP = None

$$\frac{MY_{real}}{MY} + \frac{MP_{real}}{MP} + \frac{MR_{real}}{MR} = \frac{0.3528}{3.88} < 1$$

After comparison, the loads are all within the available range, so MEHC2-25 grippers can be used.

MEHC2 Inside structure & Parts list

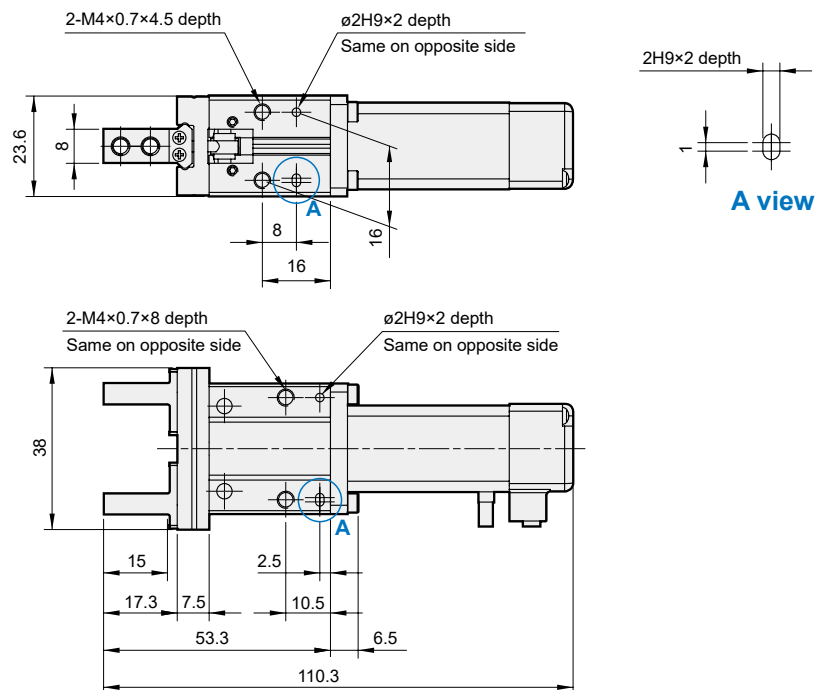
ELECTRIC GRIPPER (WITH MOTOR)



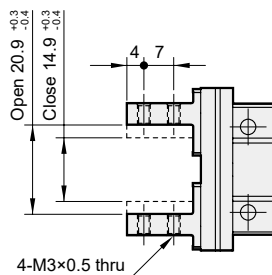
Material

No.	Part name	Material	Q'y
1	Body	Aluminum alloy	1
2	Motor fixed plate	Aluminum alloy	1
3	Screw	Stainless steel	1
4	Nut	Bronze	1
5	Gripping set	Stainless steel (*)	1
6	Rod	Stainless steel	2
7	Pin	Carbon steel	2
8	Step motor	—	1
9	Locating pin	Bearing steel	3
10	Pin	Steel	1
11	Screw	Stainless steel	4
12	Screw	Carbon steel	1
13	Bolt	Stainless steel	4
14	Bolt	Stainless steel	4
15	Bolt	Stainless steel	4

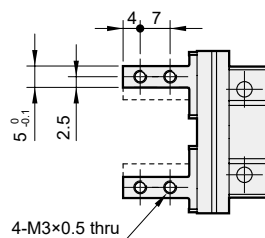
* Bearing steel balls as standard.



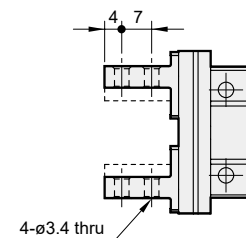
Standard



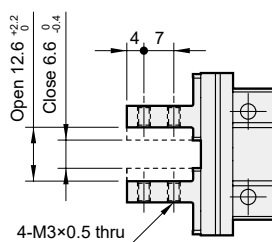
1: Standard (Side tapped)



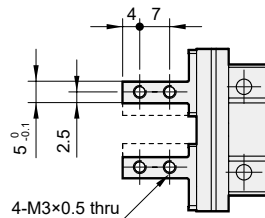
2: Standard (Through hole)



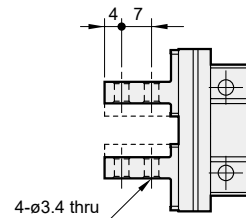
N: Narrow



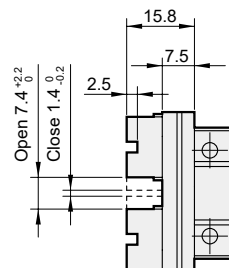
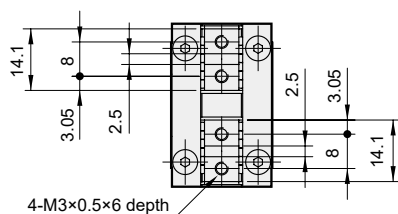
N1: Narrow (Side tapped)



N2: Narrow (Through hole)

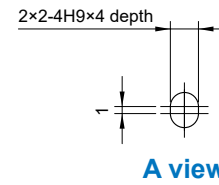
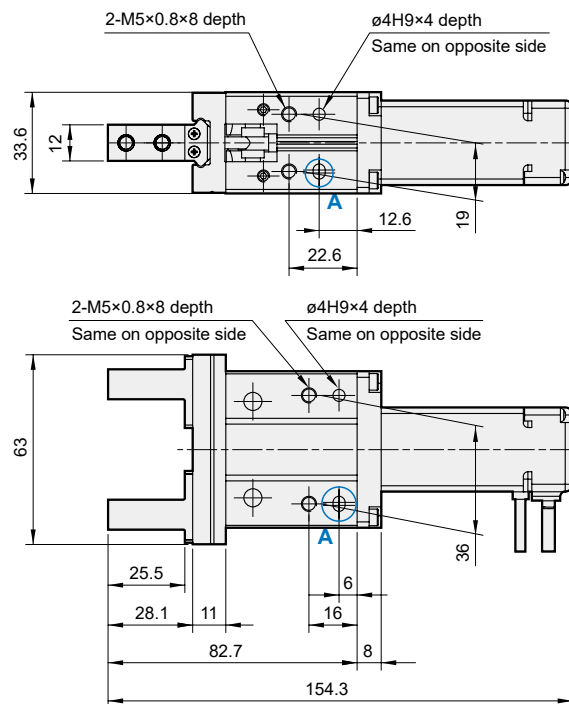


3: Flat



MEHC2 Dimensions 25

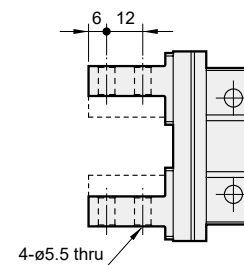
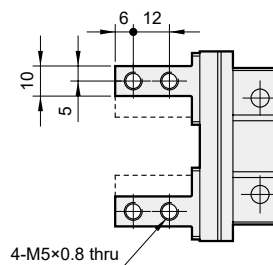
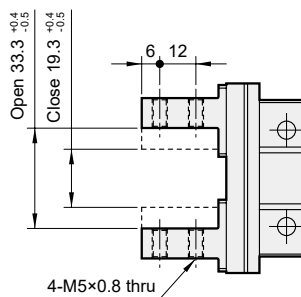
ELECTRIC GRIPPER (WITH MOTOR)



Standard

1: Standard (Side tapped)

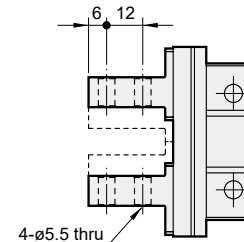
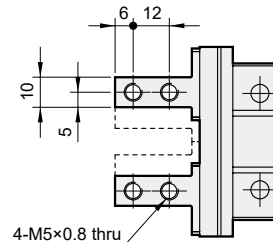
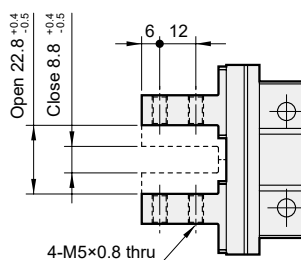
2: Standard (Through hole)



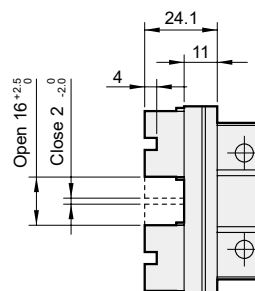
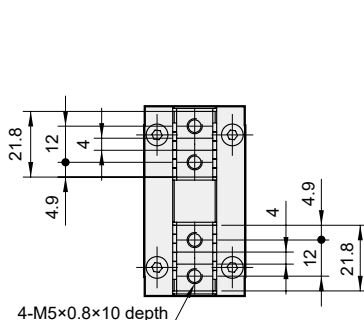
N: Narrow

N1: Narrow (Side tapped)

N2: Narrow type (Through hole)



3: Flat





Features



User manual



Selector table



Applications



Features

- Self-locking mechanism prevents loosening, ensuring secure and reliable gripping.
- Compatible with seven types of gripper jaws to meet diverse needs.
- Provides five mounting surfaces for flexible adaptation to various applications.
- Integrated motor and controller offer a space-saving, compact design.
- Operated via I/O signals for quick and straightforward control.
- Three adjustable gripping force levels allow flexibility for different workpieces.

Motor type Step motor Transmission Lead screw

Environment Standard Guide type Linear guide

Specification

Model		MEHC3	
Size		16	25
Total jaw stroke (mm)		6	14
Gripping force *1	Level 1 (N)	12	25
	Level 2 (N)	17	33
	Level 3 (N)	22	41
Opening / Closing time (sec)		0.5	
Transmission		Lead screw	
Guide type		Non-recirculating linear bearings	
Repeatability *2 (mm)		±0.02	
Operating temperature (°C)		5 ~ 40	
Operating humidity (%RH)		<85 (Non-condensing, no dew formation)	
Control method		I/O, Built-in controller	
I/O interface	Input	3 points (PNP)	3 points (NPN)
	Output	1 point (NPN)	1 point (NPN)
Rated voltage (V)		DC24 ±10%	
Power consumption *3	Standby (W)	1	1
	Level 1 (W)	3	3
	Level 2 (W)	6	5
	Level 3 (W)	9	7
Weight (kg)		0.3	0.8

*1. Gripping force tolerance ± 20%.

*2. The offset value of the gripped item under the same gripping parameters.

*3. The power consumption indicated for each gripping force level represents the instantaneous maximum power consumption.

Order example

MEHC3 — 16 — N — 005

Model

Size

I/O+Power cable length

16

25

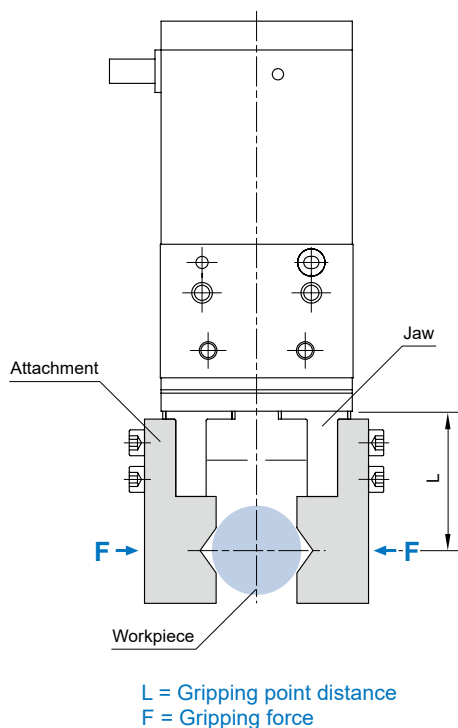
005 0.5 m

015 1.5 m (standard)

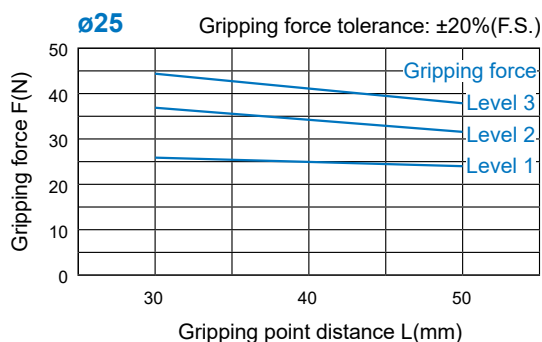
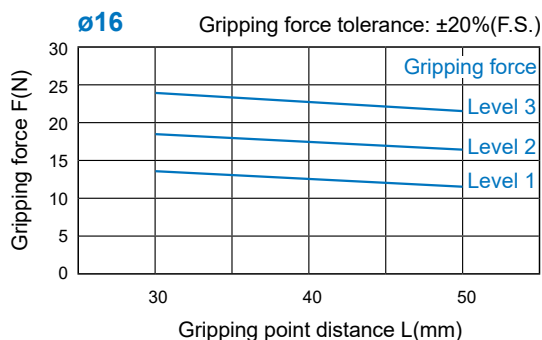
Jaw type

Blank: Standard	1: Standard (Side tapped)	2: Standard (Through hole)	3: Flat
N: Narrow	N1: Narrow (Side tapped)	N2: Narrow (Through hole)	

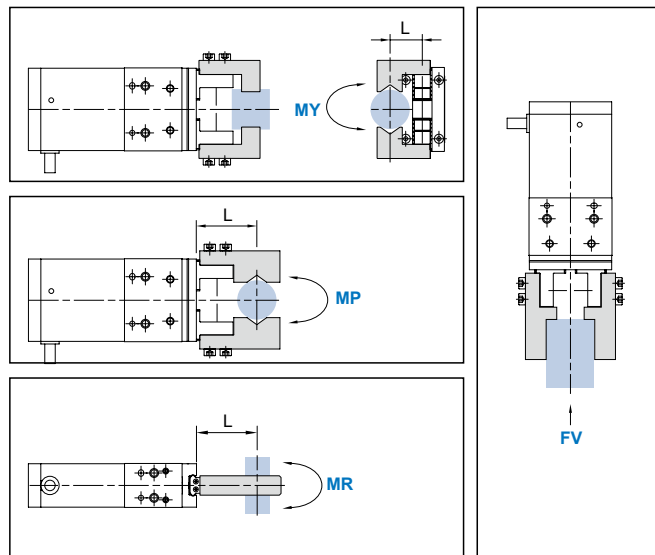
Evaluation of gripping force



Gripping force diagram



Allowable moment and force (N.m / N)



Model	MY	MP	MR	FV
	Max. moment (N.m)			Max. force (N)
MEHC3-16	0.68	0.68	1.36	98
MEHC3-25	1.94	1.94	3.88	255

*1. The force and moment values in the table are static values.

*2. When used for handling, please consider acceleration and deceleration inertia.

Pin assignment of I/O cable

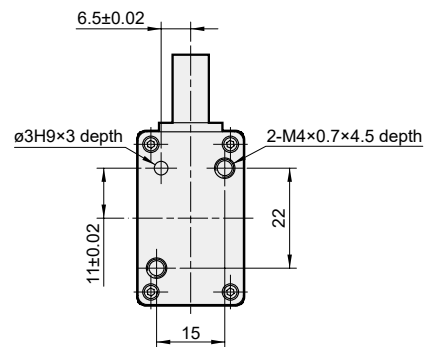
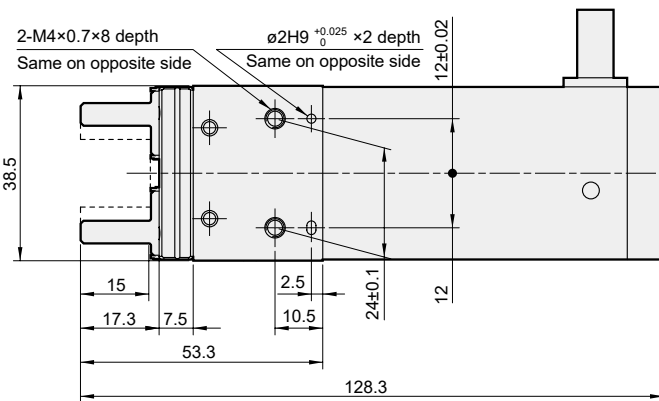
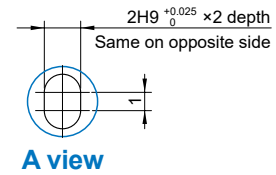
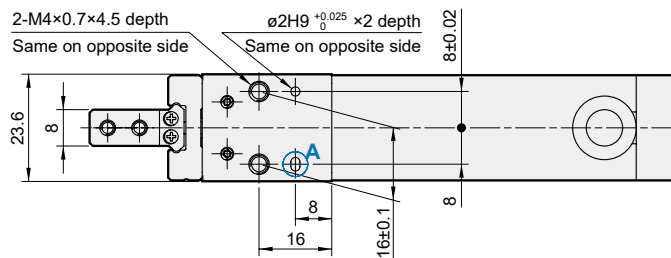
Size	16		25	
PIN No.	Function	Color	Function	Color
1	VCC (24VDC)	Red	VCC (24VDC)	Red
2	GND	Black	GND	Black
3	Input 1	Red	Input Com	Red
4	Input 2	Black	Input 1	Black
5	Input 3	Yellow	Input 2	Yellow
6	Input Com-	Black	Input 3	Yellow
7	Output 1	Red	Output 1	Red
8	Output 1 Com-	Black	Output 1 Com-	Black

Input 3	Input 2	Input 1	Function
Off	Off	On	Close jaws
Off	On	Off	Open jaws
On	Off	Off	Clear alarm

On	Off	On	Set level 1 gripping force
On	On	Off	Set level 2 gripping force
On	On	On	Set level 3 gripping force

Output 1	Gripping force reaches the set value
----------	--------------------------------------

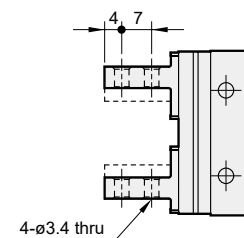
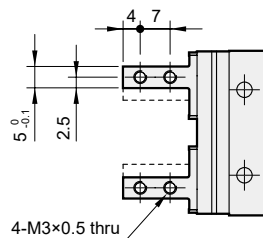
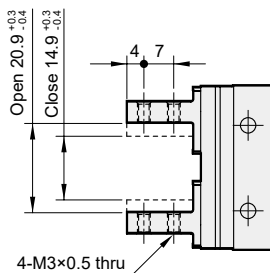
* Please carefully and thoroughly refer to the user manual for the wiring of the I/O cables.



Standard

1: Standard (Side tapped)

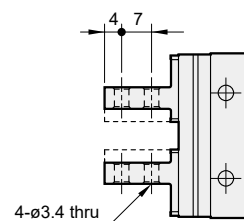
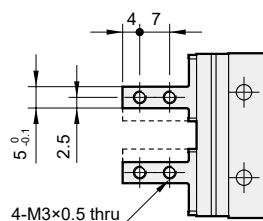
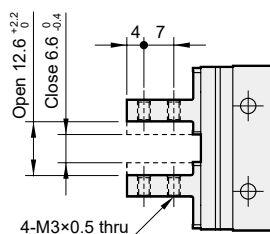
2: Standard (Through hole)



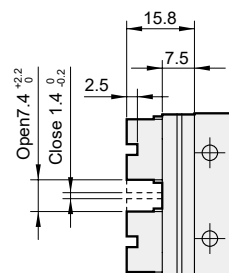
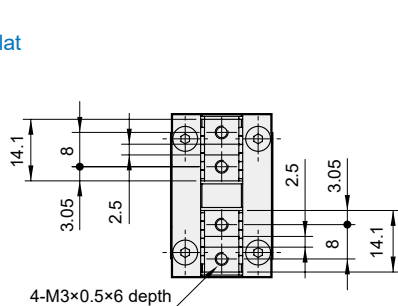
N: Narrow

N1: Narrow (Side tapped)

N2: Narrow (Through hole)

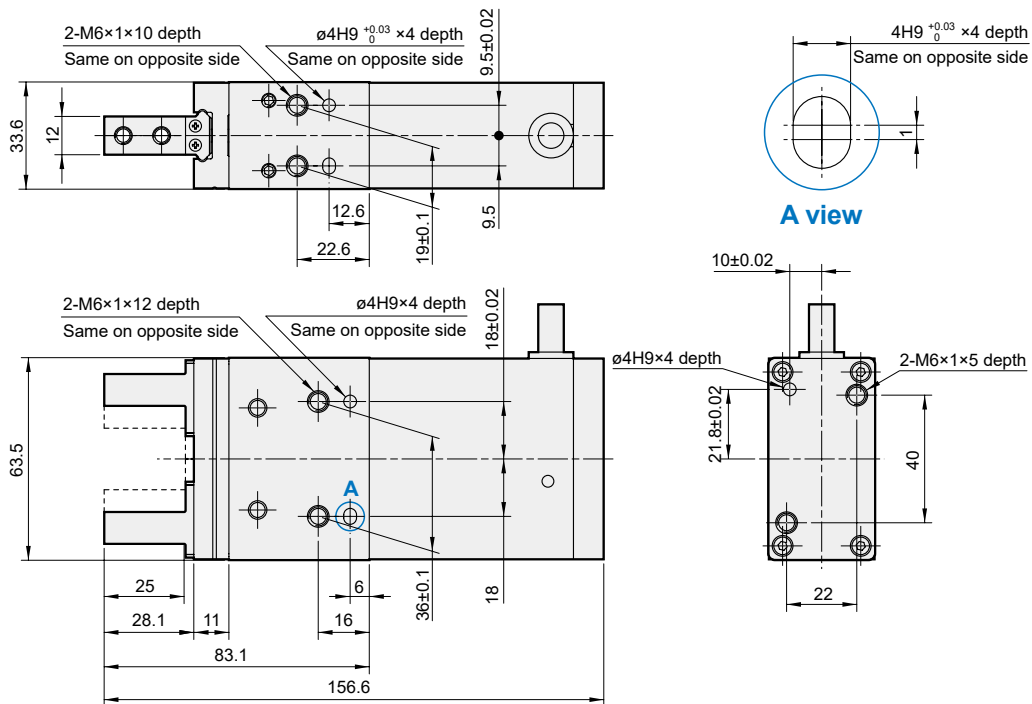


3: Flat



MEHC3 Dimensions 25

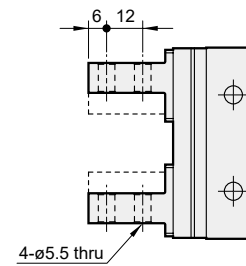
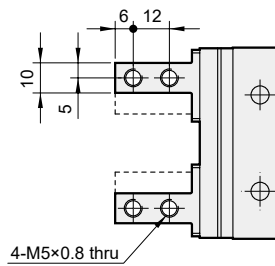
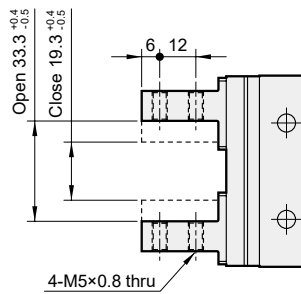
ELECTRIC GRIPPER (WITH MOTOR)



Standard

1: Standard (Side tapped)

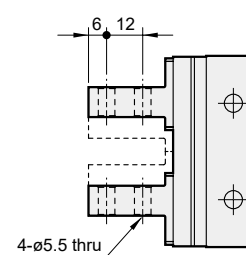
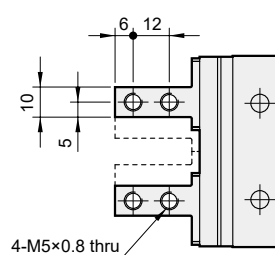
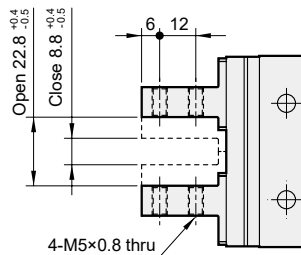
2: Standard (Through hole)



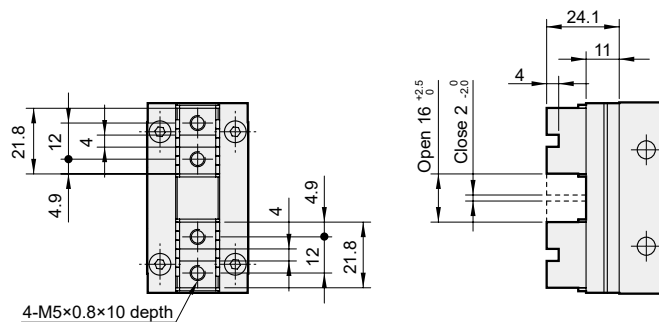
N: Narrow

N1: Narrow (Side tapped)

N2: Narrow (Through hole)



3: Flat

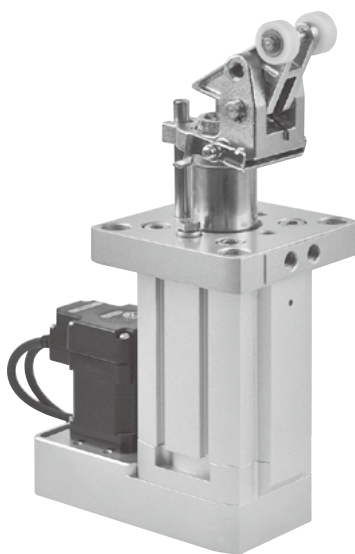




Selector table



Controller



TAIWAN
EXCELLENCE 2022

Motor type Step motor

Transmission Trapezoidal screw + belt

Feature

- Patented lever-lock mechanism.
- Proximity sensors are available.
- Magnetic as standard.
- Adjustable shock absorbers provide good capacity for different applications.

Specification

Model	MESBE			
Size	32	50	63	80
Stroke (mm)	20	30	30	40
Positioning repeatability (mm)	±0.1			
Ball screw lead (mm)	1.5		2	
Ascend / descend time (s)	1			
Max. operating frequency (c.p.m)	5.5			
Ambient temperature	0~+55°C (No freezing)			
Ambient humidity (RH)	35~85% (No condensation)			
Motor size	☐ 35	☐ 42	☐ 56	☐ 60
Rated voltage	DC 24V±10%			
Cushion	Adjustable shock absorber			
Sensor switch	RDC(V), RQC(V) 			
Proximity sensor	RJY 			
Weight (kg)	1.45	2	5.42	8.85

Order example

MESBE — 50 — 30 — L — S — CK10 03 N 015														
Model	Size	Stroke		Lever Lock		Roller Material		Controller	Motor + Encoder cable		I/O type		I/O cable length	
	32	20	20 mm	—	Without	—	POM	CK10	01	1 m *2	N	NPN	015	1.5 m (standard)
	50	30	30 mm	L	Lock mechanism	S	Steel	CM20 *1	015	1.5 m *3			03	3 m
	63												03	3 m (standard)
	80	40	40 mm											

*1. Sensors are required.

*1. Sensors are required.
Unavailable for size 80.

*2. Only for CM20.

*3. Only for CK10.

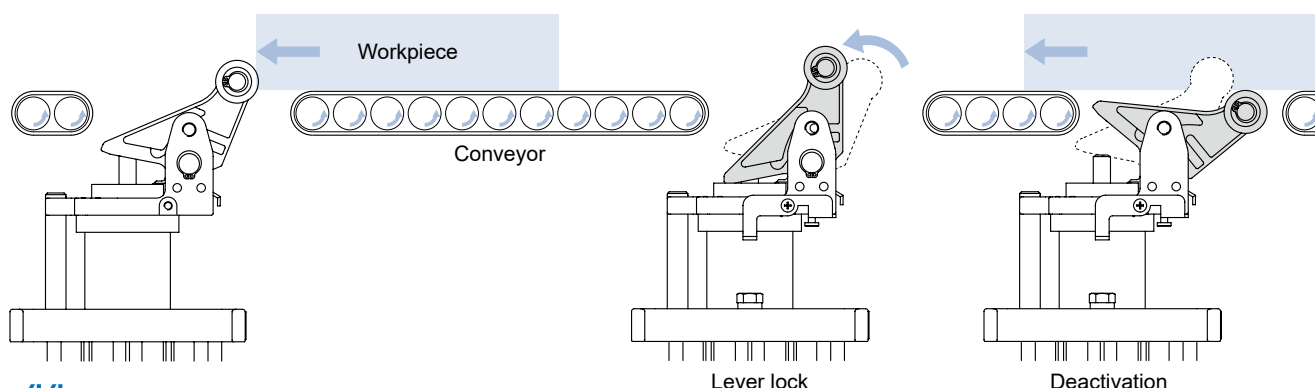
Intended use

Stopping transferred workpiece.

Lock & Deactivation mechanism

Lock mechanism prevents the light-weight workpiece from moving back by the force of shock absorber after damping.

Deactivation mechanism can deactivate the cylinder without any disassembling.



Roller toggle lever

Stop roller (×2)

Thread (×2)

For inductive proximity sensor.

Guide rod

For protection against rotation.

Knurled cap

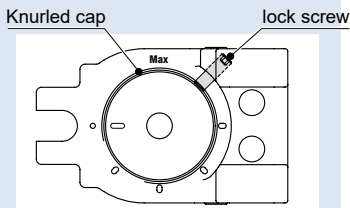
Step 1

Turn knurled cap until the desired cushioning is reached.

- Max mark:
Cushion becomes harder.
- 0 mark:
Cushion becomes softer.

Step 2

Tighten lock screw.
Tightening torque: 2 N.m



Through hole (×4)

For mounting.

Sensor switch groove (×4)

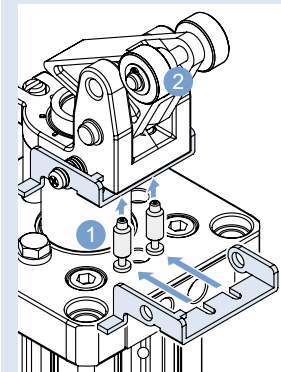
(Optional)

Lock mechanism

For activating / deactivating lever position locking mechanism.

For $\varnothing 50 \sim \varnothing 80$, two pins for lever lock and deactivation mechanism are delivered for every L type MESBE.

The pin for lever lock function is installed before delivery. The other pin is attached in the package. Please see the assembling guide below for installing.

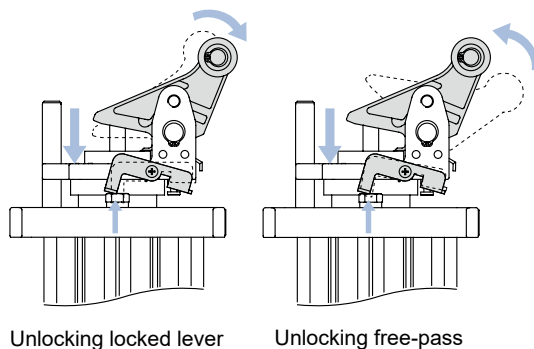


1 Lever-lock function

2 Free-pass function

1 Unlock bolt (Accessories) →

The locking / deactivation mechanism of MESBE*-L* can be unlocked/reactivated by return the piston rod.



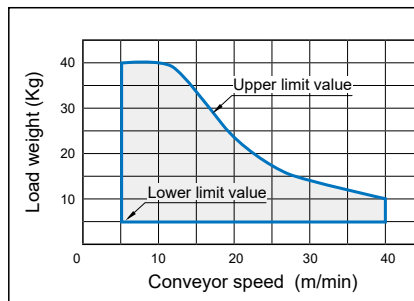
Unlocking locked lever

Unlocking free-pass

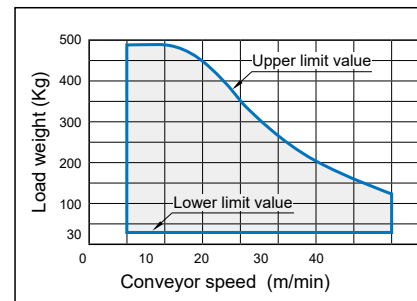
Load-speed chart for conveyor transmission

The chart is applied with the situation of friction coefficient $\mu = 0.1$

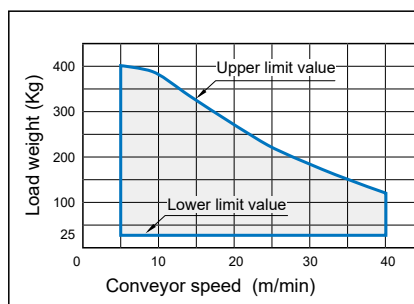
32-20 (Size - stroke)



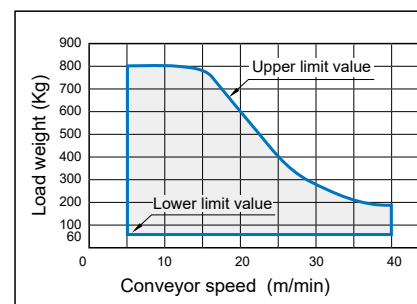
63-30



50-30



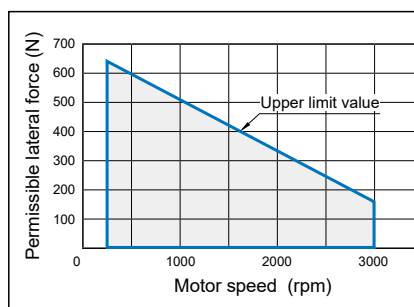
80-40



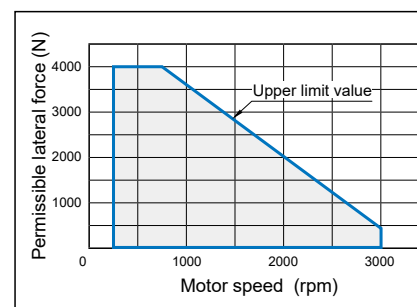
Lateral force - motor speed chart

The lateral force is caused by a blocking object on the conveyor, and its limit is proportional to the motor speed.

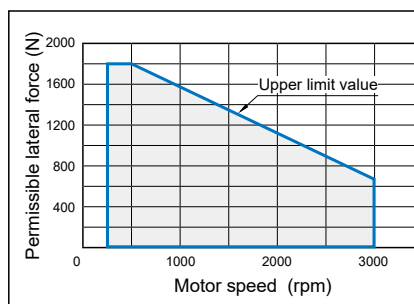
32-20



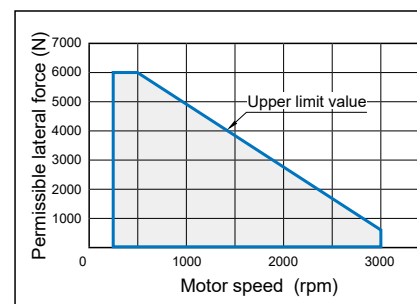
63-30



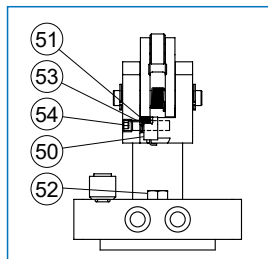
50-30



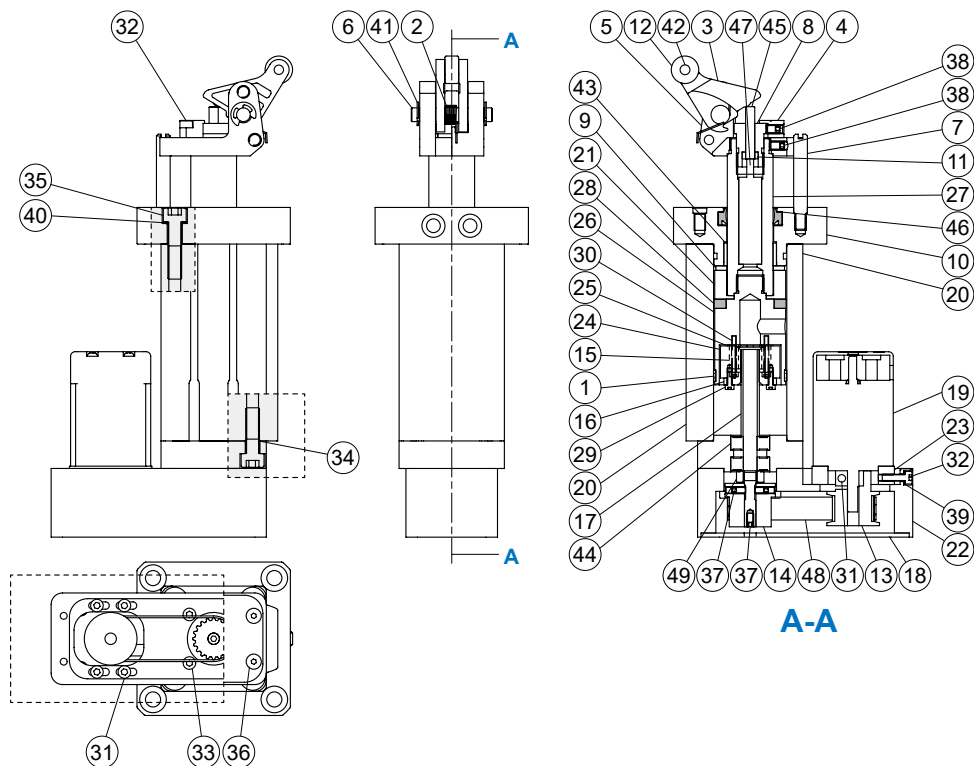
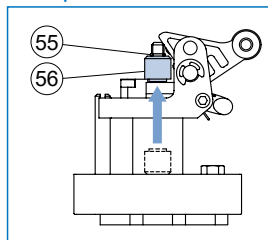
80-40



L: Lock mechanism



Free pass mechanism

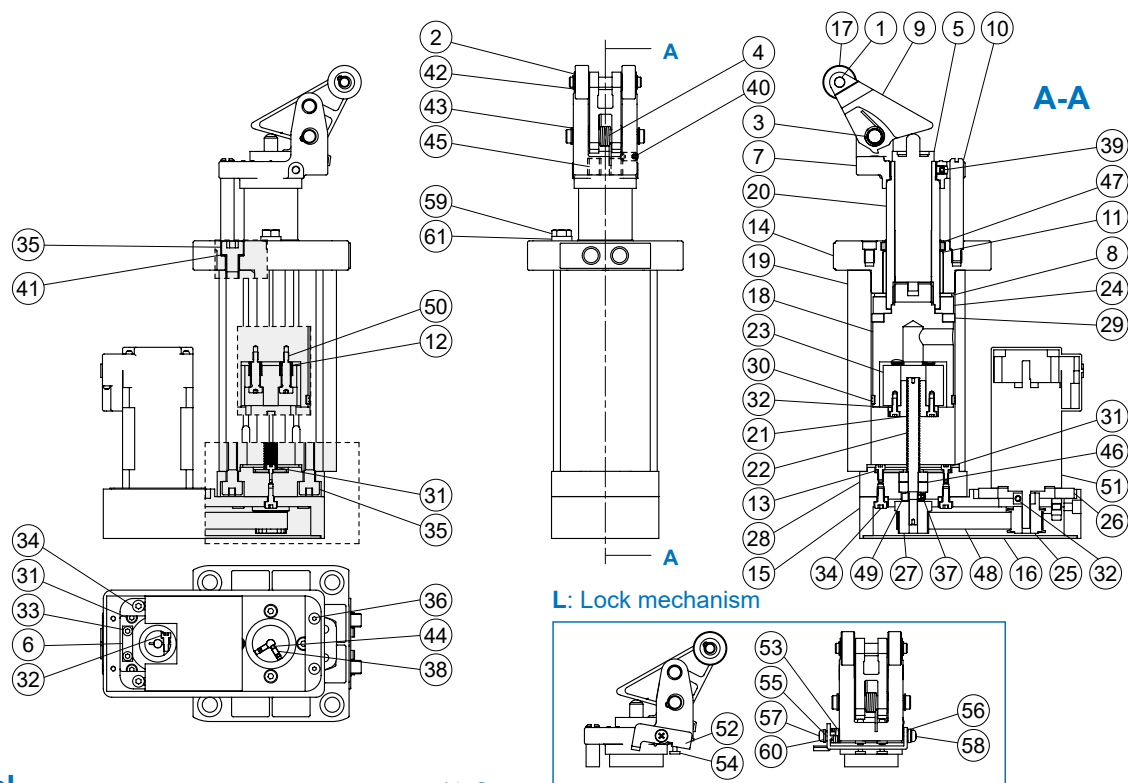


Material

*1. S type.

No.	Part name	Material	Q'y
1	Wear ring	Resin	1
2	Lever spring	Steel	1
3	Lever	Steel	1
4	Damper lock	Stainless steel	1
5	Lever holder	Steel	1
6	Lever Pin	Steel	1
7	Guide rod	Steel	1
8	Adjusting cap	Stainless steel	1
9	Cushion pad	NBR	1
10	Cover	Aluminum alloy	1
11	Locating ring	Aluminum alloy	1
12	Roller	Alloy steel *1	1
		Resin	1
13	Driving wheel	Aluminum alloy	1
14	Driven wheel	Aluminum alloy	1
15	Collar	Steel	4
16	Nut	Copper alloy	1
17	Lead screw	Steel	1
18	Cover	Aluminum alloy	1
19	Step motor	—	1
20	Housing	Aluminum alloy	1
21	Magnet holder	Aluminum alloy	1
22	Belt box	Aluminum alloy	1
23	Motor holder	Aluminum alloy	1
24	Piston connector	Aluminum alloy	1
25	Spring	Steel	4
26	Piston	Aluminum alloy	1
27	Piston rod	Steel	1
28	Magnet ring	Magnet	1

No.	Part name	Material	Q'y
29	Hexagon bolt	Stainless steel	4
30		Stainless steel	4
31		Stainless steel	9
32		Stainless steel	3
33		Steel	4
34	Screw	Steel	4
35		Steel	4
36	Screw	Stainless steel	4
37	Screw	Stainless steel	3
38	Spring washer	Steel	2
39	Spring washer	Steel	1
40	Spring washer	Steel	4
41	Stop ring	Steel	2
42	Roller pin	Steel	1
43	Bush	Resin	1
44	Ball bearing	Steel	2
45	Pin	Steel	1
46	Seal	NBR	1
47	Shock absorber	—	1
48	Timing belt	Resin	1
49	Nut	Steel	1
50	Lever lock	Steel	1
51	Spring	Steel	1
52	Screw	Steel	1
53	Pin	Steel	1
54	Screw	Stainless steel	1
55	O-ring	NBR	1
56	Locating pin	Aluminum alloy	1



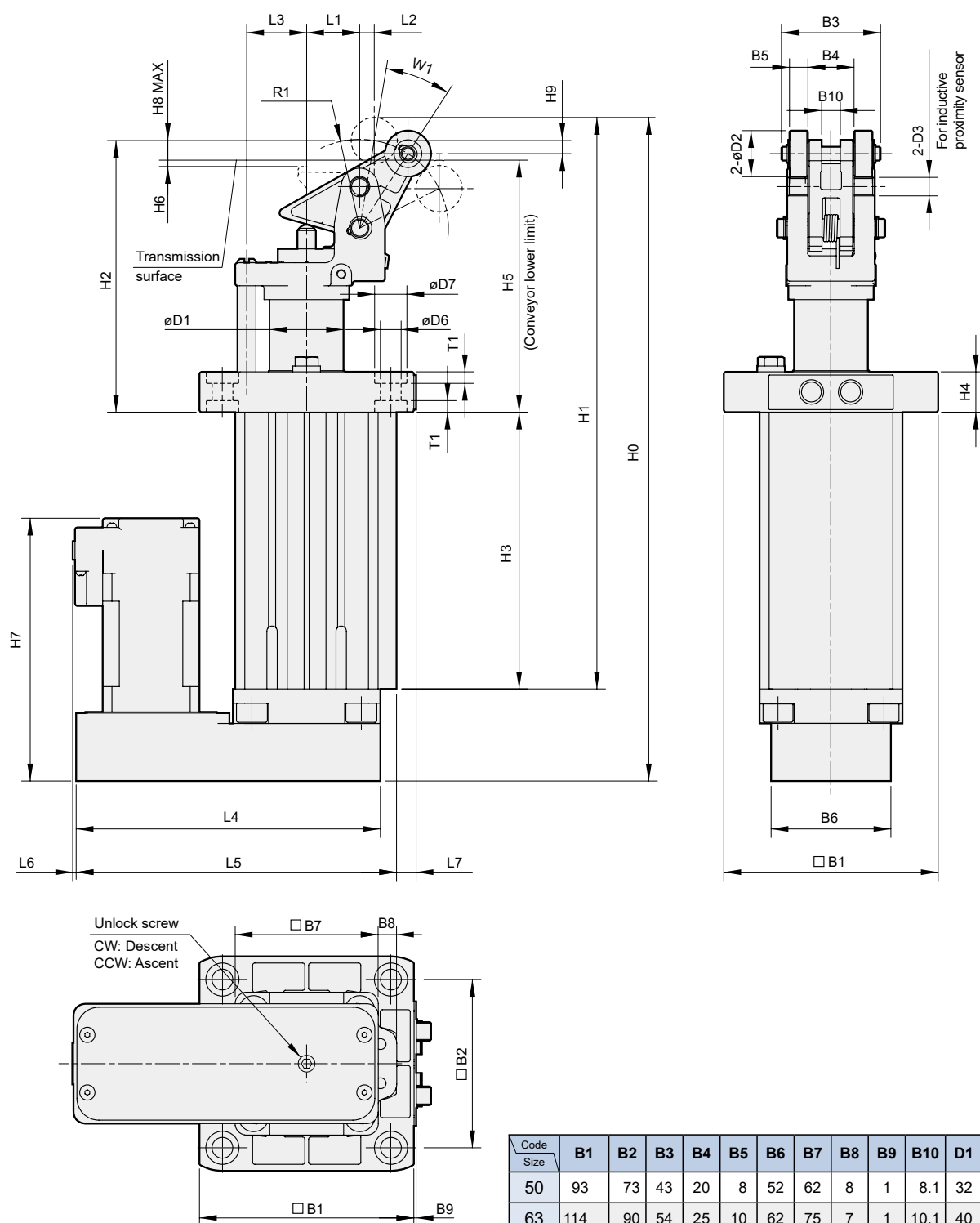
Material

*1. S type.

No.	Part name	Material	Q'ty
1	Roller pin	Steel	1
2	Roller Washer	Steel	2
3	Lever Pin	Steel	1
4	Lever spring	Steel	1
5	Adjustable absorber	—	1
6	Adjustment Block	Aluminum alloy	1
7	Lever holder	Steel	1
8	Cushion pad	NBR	1
9	Lever	Steel	1
10	Guide rod	Steel	1
11	Bush	Resin	1
12	Spring	Steel	4
13	Bearing cap	Steel	1
14	Cover	Aluminum alloy	1
15	Motor connector	Aluminum alloy	1
16	Cover	Aluminum alloy	1
17	Roller	Alloy steel *1	2
		Resin	2
18	Piston	Aluminum alloy	1
19	Housing	Aluminum alloy	1
20	Piston rod	Steel	1
21	Nut	Copper alloy	1
22	Lead screw	Steel	1
23	Piston connector	Aluminum alloy	1
24	Magnet holder	Aluminum alloy	1
25	Driving wheel	Aluminum alloy	1
26	Motor holder	Aluminum alloy	1
27	Driven wheel	Aluminum alloy	1
28	Housing holder	Aluminum alloy	1
29	Magnet ring	Magnet	1
30	Wear ring	Resin	1

31		Stainless steel	8
32		Steel	5
33	Hexagon bolt	Stainless steel	2
34		Stainless steel	8
35		Stainless steel	8
36	Screw	Stainless steel	4
37	Screw	Stainless steel	2
38		Stainless steel	2
39	Screw	Steel	1
40		Steel	1
41	Spring washer	Steel	4
42	Stop ring	Steel	2
43		Steel	2
44	Feather key	Steel	1
45	Rod bush	Resin	2
46	Ball bearing	Steel	2
47	Dust-proof seal	NBR	1
48	Timing belt	Resin	1
49	Screw	Steel	1
50	Screw	Steel	4
51	Step motor	—	1
52	Lever lock	Steel	1
53	Spring	Steel	1
54	Locating pin	Steel	2
55	Collar	Steel	1
56	Collar #2	Steel	1
57	Screw	Steel	1
58	Screw (with washer)	Steel	1
59	Screw	Steel	1
60	Spring washer	Steel	1
61	Flat washer	Steel	1





Code Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	D1	D2
50	93	73	43	20	8	52	62	8	1	8.1	32	20
63	114	90	54	25	10	62	75	7	1	10.1	40	20
80	137.5	110	63	30	12	62	94	8	0.5	12.1	50	25

Code Size	D3	D6	D7	H0	H1	H2	H3	H4	H5	H6	H7	H8	H9	L1	L2	L3	L4	L5	L6	L7	R1	T1	W1
50	M8×1	9	14	287.8	247.8	117.8	120	17.5	109.3	2.76	113.5	8.5	5.7	23	6.3	26	132	140	0.5	8.5	38.5	5	23.5°
63	M8×1	11	18	315.5	271.0	134.0	127	25	126.3	6.26	131	7.75	4.8	29	6	34	148	155	5.3	12.75	44.4	6	20.3°
80	M8×1	12.9	20	383.0	336.5	159	165	19	146.9	4.31	138	12.1	7	36	8	42	167	175	4	14.25	55.6	6	21.9°

Motor Selection Table

ELECTRIC ACTUATOR



Motor compatibility (Actuator for **WITHOUT MOTOR**)

Model	METFB			METG			METS2			METS	METI			MEQG		MEQI			
Size	25	32	40	4	5	8	10	14	17	22	32	40	50	5	8	32	40	50	63
M-50W	○			○			○				○	○				○	○		
M-100W	○			○	○		○				○	○		○		○	○		
M-200W		○	○			○	○	○	○				○		○			○	○
M-400W		○	○			○	○	○	○				○		○			○	○
M-750W									○	○									
P-50W	○			○			○				○	○				○	○		
P-100W	○			○	○		○				○	○		○		○	○		
P-200W		○	○			○	○	○	○				○		○			○	○
P-400W		○	○			○	○	○	○				○		○			○	○
P-750W									○	○									
S-□42	①	①									①	①				①	①		
S-□56			①										①					①	①
B-□42	②	②									②	②				②	②		
B-□56			②										②					②	②

* Compatibility controller: ① CK10: Torque type ② CM20: Positioning type



Motor compatibility (Actuator for **WITH MOTOR**)

Model	MESS2		MESH2		MESF2		MEHC2		MEHC3		MESBE				MERE		
Size	16	25	16	20	16	20	16	25	16	25	32	50	63	80	10	30	50
□20	①②③		①②③		①②③		①		④						①②		
□25						②③											
□28		①②③		①②③				①		④						①②	
□35											①②						①②
□42												①②					①②
□56													①②				
□60														①			

Model	MEJQ	
Size	16	20
□25	②③	
□28	①	
□35	①②③	

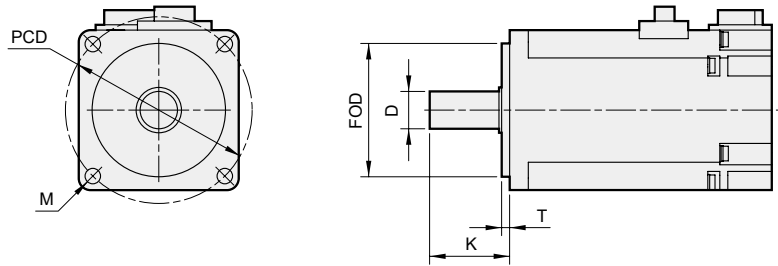
* Compatibility controller
 ① CK10 Torque type
 ② CM20 Positioning type
 ③ CM10 Pulse and open loop type
 ④ CL10 Integrated motor and controller

Motor Selection Table – for *WITHOUT MOTOR*

ELECTRIC ACTUATOR



Servo motors brand & Dimensions



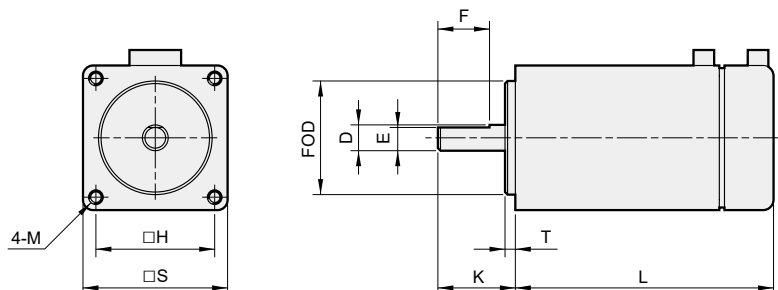
Brand	Mark	Rated output	Motor model (Without brake)	Motor model (With brake)	Installation dimensions (mm)						
					PCD	M	FOD	T	D	K	
Mitsubishi	M	50W	HG-KR053	HG-KR053B	ø46	2-ø4.5	ø30	2.5	ø8	25	
		100W	HG-KN13J	HG-KN13BJ	ø46	4-ø4.5	ø30	2.5	ø8	25	
		200W	HG-KN23J	HG-KN23BJ	ø70	4-ø5.8	ø50	3.0	ø14	30	
		400W	HG-KN43J	HG-KN43BJ	ø70	4-ø5.8	ø50	3.0	ø14	30	
		750W	HG-KN73J	HG-KN73BJ	ø90	4-ø6.6	ø70	3.0	ø19	40	
Yaskawa		50W	SGM7J-A5A7D61	SGM7J-A5A7D6C	ø46	2-ø4.3	ø30	2.5	ø8	25	
		100W	SGM7J-01A7A21	SGM7J-01A7A2C	ø46	2-ø4.3	ø30	2.5	ø8	25	
		200W	SGM7J-02A7A21	SGM7J-02A7A2C	ø70	4-ø5.5	ø50	3.0	ø14	30	
		400W	SGM7J-04A7A21	SGM7J-04A7A2C	ø70	4-ø5.5	ø50	3.0	ø14	30	
		750W	SGM7J-08A7A21	SGM7J-08A7A2C	ø90	4-ø7.0	ø70	3.0	ø19	40	
Delta		50W	ECMA-C1040FES	ECMA-C1040FFS	ø46	2-ø4.5	ø30	2.5	ø8	25	
		100W	ECMA-C10401PS	ECMA-C10401QS	ø46	4-ø4.5	ø30	2.5	ø8	25	
		200W	ECMA-C20602ES	ECMA-C20602FS	ø70	4-ø5.5	ø50	3.0	ø14	30	
		400W	ECMA-C20604PS	ECMA-C20604QS	ø70	4-ø5.5	ø50	3.0	ø14	30	
		750W	ECMA-C20807ES	ECMA-C20807FS	ø90	4-ø6.6	ø70	3.0	ø19	35	
Panasonic		P	50W	MSMF5A2L1A2	MSMF5A2L1B2	ø45	2-ø3.4	ø30	3.0	ø8	25
			100W	MSMF012L1A2	MSMF012L1B2	ø45	4-ø3.4	ø30	3.0	ø8	25
			200W	MSMF022L1A2	MSMF022L1B2	ø70	4-ø4.5	ø50	3.0	ø11	30
			400W	MSMF042L1A2	MSMF042L1B2	ø70	4-ø4.5	ø50	3.0	ø14	30
			750W	MSMF082L1A2	MSMF082L1B2	ø90	4-ø6.0	ø70	3.0	ø19	35

* The values in the above table are for reference only. Please refer to each manufacturer's catalog for actual and detailed dimensions.

* If your inquiry is not listed in the above table, please contact us.



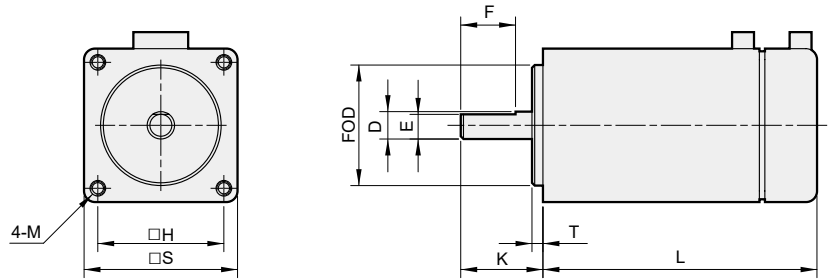
Stepper motors brand & Dimensions



Brand	Mark	Frame size	Motor model (Without brake)	Compatible controller	Outline dimensions (mm)		Installation dimensions (mm)							
					S	L	H	M	FOD	T	D	K	E	F
Mindman	S	□42/ NEMA 17	SM-42L-F	CK10	42	63	31	M3×0.5 depth 4.5 min	ø22	2	ø5	24	4.5	20
		□56/ NEMA 23	SM-56L-F		57	92	47.14	ø5 thru	ø38.1	1.6	ø6.35	20	5.8	15
	B	□42/ NEMA 17	BM-42M	CM20	42	58	31	M3×0.5 depth 4 min	ø22	2	ø5	20	4.5	15
		□56/ NEMA 23	BM-56L		57	87	47.14	ø4.5 thru	ø38.1	1.6	ø8	24	7.5	20

Motor Selection Table – for WITH MOTOR

ELECTRIC ACTUATOR



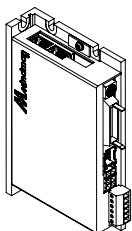
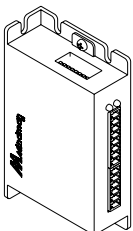
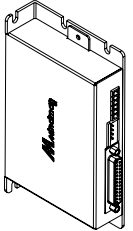
Stepper motors brand & Dimensions

Brand	Mark	Frame size	Motor model (Without brake)	Compatible controller	Encoder	Outline dimensions (mm)		Installation dimensions (mm)							
						S	L	H	M	FOD	T	D	K	E	F
Mindman	S	□20/ NEMA 8	SM-20L-F	CK10	Yes	20	53	16	M2×0.4 depth 2.5 min	ø16	1.5	ø4	10	3.5	7
		□28/ NEMA 11	SM-28L-F			28	63.6	23	M2.5×0.45 depth 2.5 min	ø22	2	ø5	15	4.5	10
		□35/ NEMA 14	SM-35L-F			35	60	26	M3×0.5 depth 4.5 min	ø22	2	ø5	20	4.5	11
		□42/ NEMA 17	SM-42L-F			42	63	31	M3×0.5 depth 4.5 min	ø22	2	ø5	24	4.5	20
		□56/ NEMA 23	SM-56L-F			57	92	47.14	ø5 thru	ø38.1	1.6	ø6.35	20	5.8	15
		□60/ NEMA 24	SM-60L-F			60	101	50	ø5 thru	ø36	1.6	ø8	20.6	7.5	15
	B	□20/ NEMA 8	BM-20M	CM20	Yes	20	56	16	M2×0.4 depth 2.5 min	ø15	1.5	4	10	3.5	7
		□25/ NEMA 10	BM-25M			25	50.5	20	M2.5×0.45 depth 3.0 min	ø15	1.5	ø5	15	4.5	10
		□28/ NEMA 11	BM-28M			28	50.5	23	M2.5×0.45 depth 5.5 min	ø22	1.5	ø5	15.7	4.5	10
		□35/ NEMA 14	BM-35M			35	61	29	M3×0.5 depth 4.0 min	ø22	2	5	20	–	–
		□42/ NEMA 17	BM-42M			42	58	31	M3×0.5 depth 4.0 min	ø22	2	ø5	20	4.5	15
		□56/ NEMA 23	BM-56L			57	87	47.14	ø4.5 thru	ø38.1	1.6	ø8	24	7.5	20
	OB	□20/ NEMA 8	OBM-20M	CM10	No	20	40.5	16	M2×0.4 depth 2.5 min	ø15	1.5	ø4	10	3.5	7
		□25/ NEMA 10	OBM-25M			25	40.5	20	M2.5×0.45 depth 3.0 min	ø15	1.5	ø5	15	4.5	10
		□28/ NEMA 11	OBM-28M			28	40.5	23	M2.5×0.45 depth 5.5 min	ø22	1.5	ø5	15.7	4.5	10
		□35/ NEMA 14	OBM-35M			35	51	29	M3×0.5 depth 3 min	ø22	2	ø5	20	–	–

CK10 / CM10 / CM20 series

ELECTRIC CYLINDER CONTROLLER



Controller model	CK10 (Torque type)	CM10 (Pulse type)	CM20 (Position type)
Appearance			
Stepper motor type	SM	OBM	BM
Features	Position table	Yes	–
	Pulse	Single / Double / AB quadrature	Single / Double
	I/O Input	12	–
	I/O Output	10	–
	Homing sensor	–	Necessary
	Communication	Plus-R, DLL function (PC base), Modbus over RS485	–
	Motion mode	Position control, Velocity control, Torque control	Position control, Velocity control
Input power	CTL (Controller): DC 24V DRV (Motor): DC 24 / 48V	DC 24V	DC 24 / 48V
Dimension W×H×D	134×83.3×26.5 mm	97×60×24 mm	146×86.6×28.4 mm

Accessories of controller side

Order example	Description
CK10	-ME015 Motor + Encoder cable - 1.5 m
	-ME03 Motor + Encoder cable - 3 m
	-ME05 Motor + Encoder cable - 5 m
	-S015 I/O signal cable - 1.5 m (32 Pin)
	-S03 I/O signal cable - 3 m (32 Pin)
	-C035 *1 Communication cable - 3.5 m
CM10	-△△-M01 *2,3,4 Motor cable - 1 m
	-△△-M03 *2,3,4 Motor cable - 3 m
	-△△-M05 *2,3,4 Motor cable - 5 m
CM20	-□□-ME01 *2,3,4 Motor + Encoder cable - 1 m
	-□□-ME03 *2,3,4 Motor + Encoder cable - 3 m
	-□□-ME05 *2,3,4 Motor + Encoder cable - 5 m
	-S015 I/O signal cable - 1.5 m (20 Pin)
	-S03 I/O signal cable - 3 m (20 Pin)

- *1. The communication cables of CK10 and CM20 are the same.
 *2. Power pin is included in cable. No need to buy power adapter.
 *3. △△ is represented the size of the motor – 20,25,35.
 □□ is represented the size of the motor – 20,25,35,42,56.
 *4. The 25/28 motor and encoder cable are shared.

Cable material

Cable type	Material
I/O Signal	Isolation
Motor	Flexible
Encoder	Isolation + Flexible

Power consumption

Unit: W

Controller + motor type	Motor size					
	□20	□25	□28	□35	□42	□56
CK10 + SM	26	–	28	36	52	79
CM20 + BM	26	36	36	48	60	84
CM10 + OBM	31	41	41	50	–	–

* The actual power consumption will depend on detailed current setting and moving loads.

Accessories of motor side

Order example	Description
-20-E0035 *1,2	Encoder cable - 35 cm
SM -○△-M0035 *2,3	Motor cable - 35 cm
-○△-ME0035 *2,3	Motor + Encoder cable - 35 cm

- *1. The 20,28,35 motor side encoder cable are shared.
 *2. Only available for SM-20,28,35 motor with CK10 controller.
 *3. ○△ is represented the size of the motor – 20,28,35.

CK10 / CM10 / CM20 System structure

ELECTRIC CYLINDER CONTROLLER



Mindman

Rotary Actuator

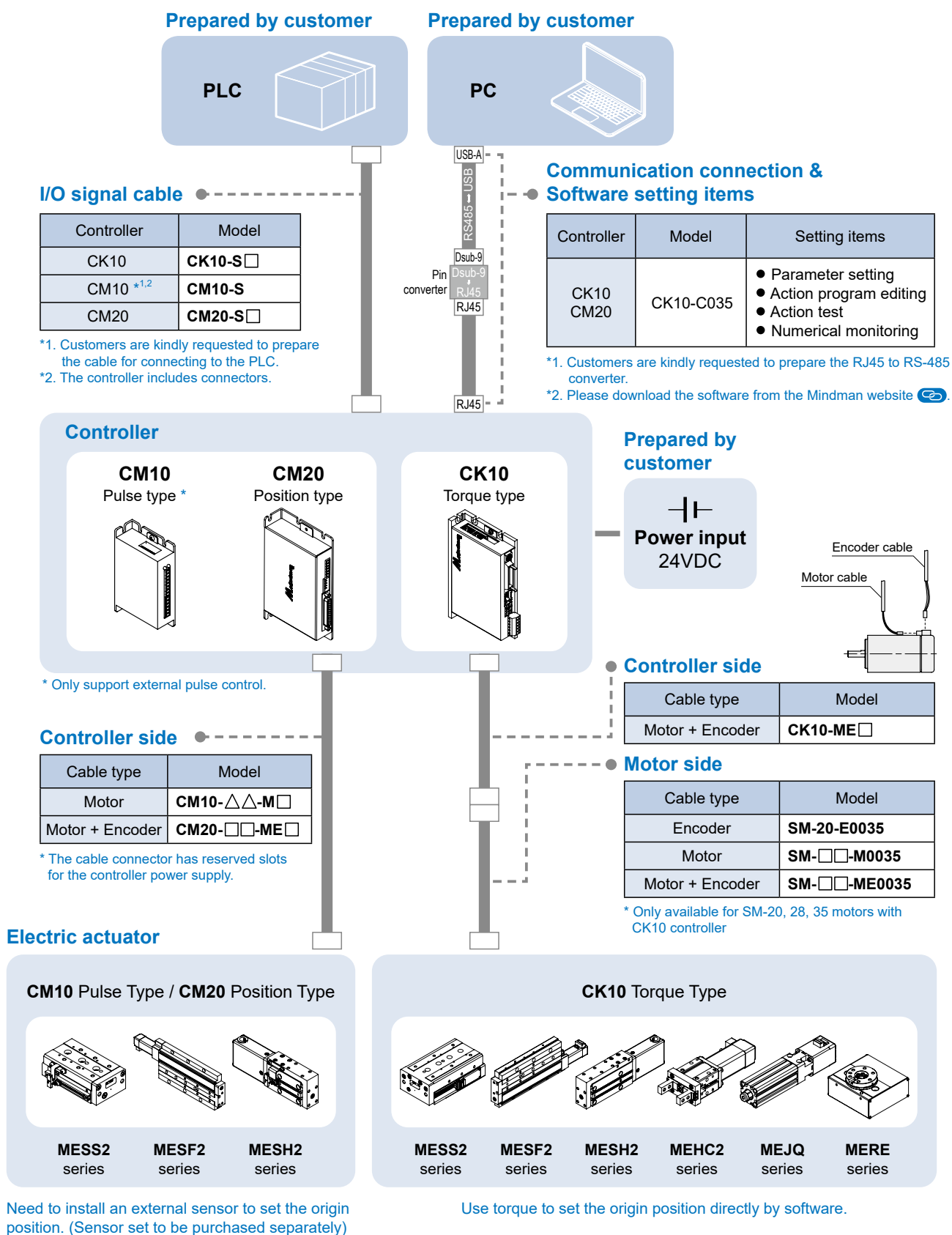
Clamp Cylinder

End of Arm Tooling

Electric Actuator

Auxiliary Equipment

Hydraulic Cylinder

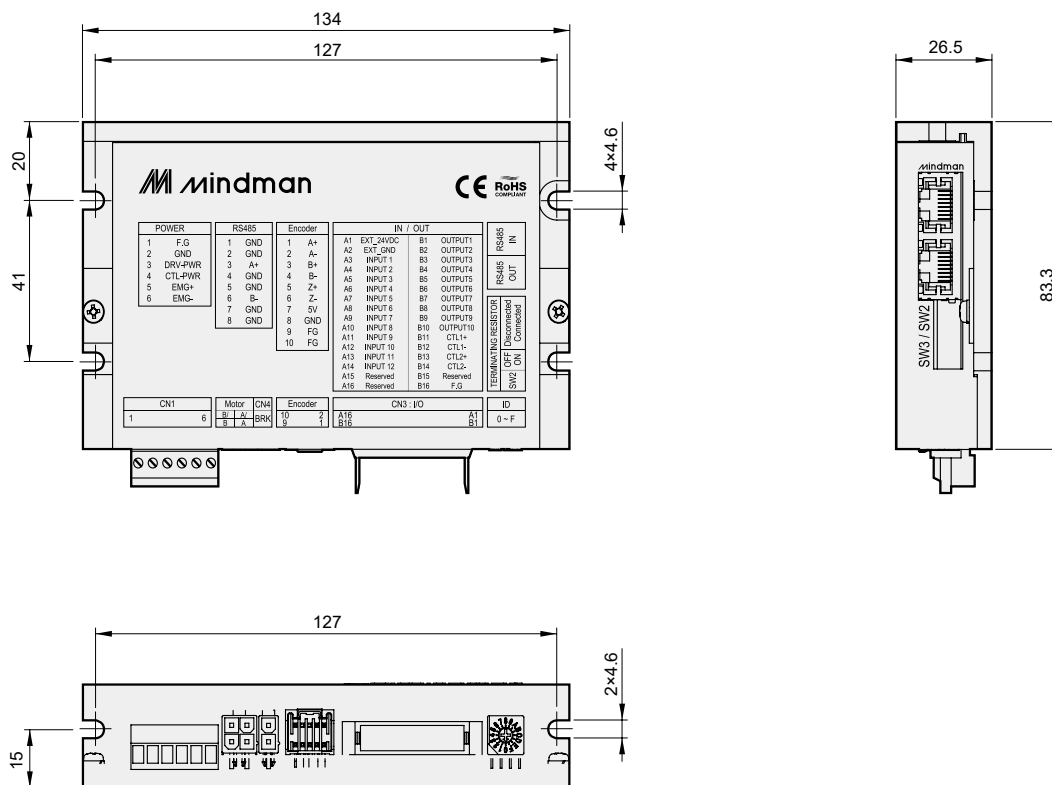


CK10 Dimensions

ELECTRIC CYLINDER CONTROLLER



CK10

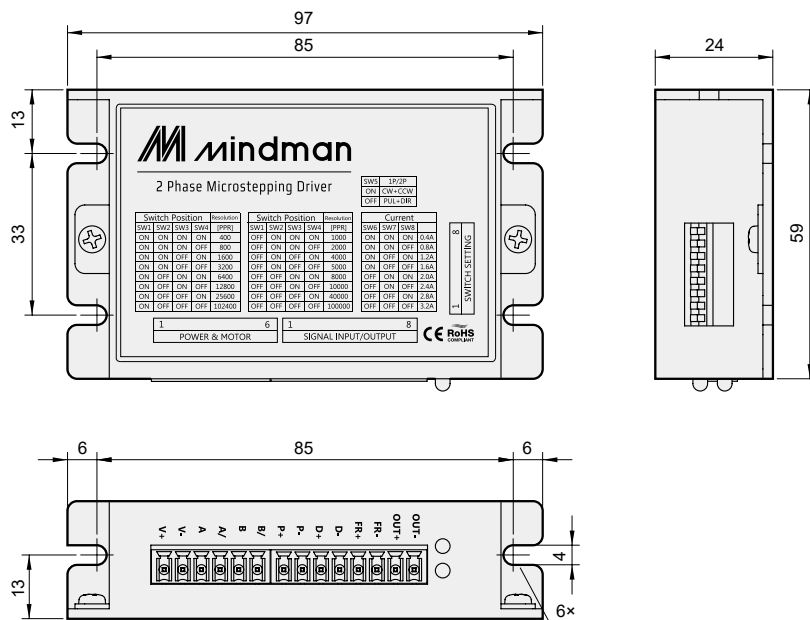


CM10 / CM20 Dimensions

ELECTRIC CYLINDER CONTROLLER



CM10



CM20

