PISCO®

MOTION
PRODUCT GUIDE

Pulse

EtherCAT®

Ethernet

CC-Link

PISCO®

INDEX

Appendix

Hi STEP Motor&Drive

Ball Screw Type PHMS Series

Safety Precautions for Robot User

Summary

- The precautions are intended to protect the user's risk and product faults by safety and correctly using the product.
- Be sure to comply with the safety regulations about KS B ISO 10218.(Requirements for the safety of industrial Robots)
- Be informed with all of our robot before model selection and using it.
- Selection and use of the robot should be performed by persons with sufficient knowledge and experience after be informed with this precautions.
- Our robot is designed and manufactured as a part for general industrial equipment. Please use it within specification range.
- Our robot's warranty is limited to the product and is not responsible for accidents or failures caused by not using it in accordance with this catalog and user's safety precautions.

※ Never use our products for the following purposes.

1. Medical equipment related to the maintenance and management of human life and body.
2. Machinery and equipment for human transportation.
3. Another devices for human life.
4. Important safety components of machinery.

This product is not designed for applications requiring high safety. No guarantees of human life.

Furthermore, the warranty coverage only to the applicable products being paid.

Attire

- Workers are required to wear work clothes, gloves, helmets, safety shoes, and safety equipment for the safety of robot transportation, installation and operation.

Transport and Loading

- Please be careful not to apply shock to robots transportation process.
- When loading and storing robots, load them in a clean environment and do not expose them to wind, rain, moisture or direct sunlight and package the product to support more than 3 parts horizontally.
- Protect the end cover and cable of the robot when moving short distances. Always keep horizontal while transporting.
- Keep the robot horizontal when transporting long distance, and fix the robot body and slide do not move.
- Our robots are not tested for environmental problems with moving or loading. Without careful care as a precision instrument, there can be problems that can significantly impact life expectancy.

Packing

- This product is packed with cleaned paper, foaming agent and plastic to protect the robot from external dust and shock.
- Remove the packaging and check for damage to the robot organ within as soon as possible.
- Check the nameplate attached to robot to confirm whether the user matches the robot you ordered. If you added an option, please verify the additional entries.
- Always keep the robot horizontally when removing the robot from the packaging box or transporting the robot. If a robot with a servo motor without a brake is installed vertically, slide may fall due to the weight of the slide, which may cause injury.

Environment

- Do not use any hazardous substances such as explosives, flammable objects at same place. There is a possibility of ignition and explosion.
- Be sure to comply with the safety regulations about KS B ISO 10218.(Requirements for the safety of industrial Robots)
- Do not use in areas as corrosion gases(sulfuric acid, hydrochloric acid). Rust may lead to poor performance of internal parts and deteriorate performance.
- Install in a place with little dust or metal dust, This could cause the robot to malfunction.
- Do not install the product in a place(4.9㎨ or more) where large vibration and shock are transmitted. Large vibrations and shocks can cause malfunctions.

※ When using in the following places, take sufficient measures against shielding. Failure to do so may cause malfunction.

1. A place where large current and high magnetic fields.
2. A place where arc discharge occurs due to welding work.
3. A place where noise occurs due to static electricity.
4. A Place where radioactivity may leak.

※ The usage environment must satisfy the following conditions.

1. Indoors and out of direct sunlight (ultraviolet).
2. Where the radiant heat does not directly reach the robot from the surrounding large heat source.
3. The ambient temperature is 0℃ to 40℃.
4. Humidity must be less than 85%, where dew does not occur.
5. Place where there is no corrosive gas or flammable gas.
6. Place where Oil mist, cutting fluid should not splash out.
7. Place where there is not a lot of dust, trash, metal powder around.
8. Place where no vibration exceeding 0.3G is transmitted.
9. Place without serious magnetic, electromagnetic, ultraviolet, or radiation.
10. This product does not consider chemical resistance.
11. In general, the environment in which workers can work without protective equipment or protective clothing.

Selection

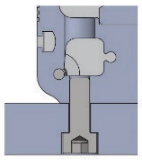
- Use within the specifications of the product. Failure comply this specification may result in product malfunction or damage. It also causes a considerable loss of robot's life time. In particular, please obey the payload and maximum speed.
- Please take a full consideration for precaustions and how to use when using in conditions and environments not listed in catalogs and also in aviation facilities, combustion equipment, amusement machines, clean rooms, safety equipment especially when considering the use for applications requiring safety. Please consult with our sales representative for any inquires.
- Failure to comply with all safety precautions shall not constitute any liability.
- Please contact nearest sales office for inquiries about product or request for repair.

Installation

- Our robot operates at a high speed, it must be fixed to a large installation surface before operation. There is a risk of injury due to damage, dropping, or abnormal operation of the product.
- When installing the product, be sure to allow enough place for maintenance work. If there is not enough space, it can not be checked and maintained everyday, causing the device to be stalled, the product may be damaged or injured while working.
- When transporting or mounting the product, be sure to support it by a lift and a support stand, or work by more than two people to ensure safety.
- Selection and use of the robot should be performed by persons with sufficient knowledge and experience after be informed with this precautions.
- When installing the product vertically, be sure to attach the brake. (Drop prevention unit)
- Make sure that the cable and connector are not disconnected. This may cause abnormal operation or fire.
- Design a safety circuit or safety device to prevent damage or injury to the equipment when the machine stops due to emergency stop or power failure.
- Robots and controllers must be grounded. If there is a short circuit, there is a possibility of electric shock and malfunction.

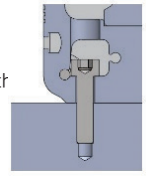
Installation the robot body

1. Lower fastening meth



At the lower part of the mounting surface, tap are machined at regular intervals(CAT. Reference) so that the bolt can be fastened to the bottom of the robot base.

2. Upper fastening meth



The c-bore is machined inside the robot at regular intervals (CAT. Reference) so that it can be fixed with the bolt after the cover is disassembled.

Installation of work things

- All robot slides of our company have tap holes and pin holes, pin holes are formed on the mounting surface of the work things and assembled with the slides to fixed them correctly.
- Even if the slide is fixed and the base is moved, the fastening method is the same.

Conditions on the installation surface.

1. The rigidity of the mounting surface should be a rigid structure with no shaking during operation of the robot.
2. The mounting surface must be machined or equivalent in level.
3. The level of the mounting surface must be measured and calibrated using a level meter.
4. The flatness of our robot installation surface is as follows.

Robot length	Flatness of mounting surface
700mm or less	0.05 mm
700 mm ~ 1300 mm	0.07 mm
More than 700mm	0.09 mm

5. When additional guide axis for anti-sag and rigidity reinforcement is installed.
   Pitch flatness between drive axis(x) and guide axis : within 0.3mm
   Yaw flatness between drive axis(x) and guide axis : within 0.1mm
6. If the accuracy of the mounting surface can not be guaranteed due to the installation conditions, insert a thickness tape in the clearance between the bottom surface of the robot and the mounting surface using a gap gauge, and calibrate it.
7. Precision of the mounting surface affects robot noise, performance, and life.
8. The lower part of the robot base is machined to the reference plane, Do install it on the lower side when you need high driving accuracy.

Bolts and torques for Fastening

1. When fastening the robot on the mounting surface, it is recommended to use bolt with high strength about ISO-10.9 or higher.
2. The tightening force of bolt for fastening depends on the material of the tab part is as follow. (Unit : kgf.㎝)

Material of the TAP	M3	M4	M5	M6	M8	M10	M12
Aluminum	10	21	45	70	150	310	600
Cast-iron	13	28	60	94	205	460	800
General iron	20	42	90	140	310	690	1200

Drive

- Do not approach the machines operating range when the robot is in operation or operational.
  There is a possibility of injury due to sudden operation of robot.
- If you use a pacemaker, do not come within 1 meter of the robot.
  The strong magnetic field inside the robot can cause the pacemaker to malfunction.(PLR, Linear Robot)
- Before supplying power to the product and before operating it,be sure to check the safety within the operating range of the device.
  If the power supply is inadvertently supplied, there is a possibility of electric shock or injured by contact with the moving parts.
- Do not touch the terminal block or switches when power is supplied. There is a possible to electric shock and abnormal operation.
- Do not scratch the cable. Scratches, excessive bending, pulling, or heavy things put on the cable may cause fire, electric shock, or abnormal operation due to electric leakage or current failure.
- If a power failure occurs, turn off the power of robot. When the power failure is restored, the robot suddenly moves, causing injury or product damage.
- Turn off the power immediately if the product generates heat, smoke, or smells. It may cause damage to the product and fire.
- If you hear a strange sound or if the vibration is too big, stop operation. If you use it as it is, Robot has a damaged may cause abnormal operation or runaway.
- Turn off the power immediately when the protective device(alarm) of the product operates. Failure to do so may result in injury or damage to the product.
  Turn off the power, remove the cause, and turn on the power again.
- Do not step on the product, use it as a stand, or place objects on it.
  This may cause overturning, product fall, injury due to falling, malfunction to product damage.
- When turning on the power, turn it on sequentially from the parent device.
  Failure to do so may cause the product to suddenly start operating, resulting in injury or damage to the product.
- Do not put your fingers or objects in the opening of the product. It may cause fire, electric shock or injury.
- Do not place magnetic media such as floppy disks within 1 meter of the product.
  The magnetic field can damage the data on the floppy disk. (PLR, Linear Robot)
- When handling the product, wear protective gloves, goggles and safety shoes as necessary to ensure safety.

Maintenance, Inspection, Repair

- Never modify the product. Failure to do may result in injury, electric shock or fire.
- Please do not disassemble about the product in the basic structure, performance and functions. It may cause injury, electric shock or fire.
- Please completely shut off the supply of electricity before any maintenance and inspection of the product, or replacement work, etc. work on.
- Please post the indication “Prohibit power supply” in a visible place so that a third party does not turns on inadvertently the power during operation.
- When multiple workers are maintenance check, be sure to make sound that carrying the axis when power is turned on or off.
- Wear protective goggles when applying grease to the drive. When grease splashes into the eyes, it causes eye infection.
- When repairing, use grease for ball screw as designated. Particularly, when mixed with a fluorocarbon-based grease and a lithium based grease, the performance of the grease deteriorates and the machine is damaged.
- Robots and controllers must be grounded. If there is a short circuit, there is a possibility of electric shock and malfunction.

Disuse

- Do not throw the product into fire. There is possibility of product rupture or toxic gas generation.
- If the product is unusable or unneeded, take appropriate disposal measures as industrial waste.

Precautions for Robot Selection

Payload

- The payload is the maximum weight that can be moved to the robot's slide as fixed.
- Please use within the suggested range considering the payload presented for each model.
- Please use horizontal load and vertical load separately according to robot installation direction.
- The load on the robot's main body affects the slide and LM Guide, consider the following points.
- Never exceed the allowable separation distance under load. This is caused by acceleration and deceleration.
  Separate calculation is required depending on load size, length, and direction. As a standard, refer to the data for each model.
- Please consult with our sales representatives for conditions of use other than those specified in our standard.

Speed

- Speed is the set speed when moving robots slide.
- Please use within the suggested values considering the speed of each ball screw given for each model.
- The slide is accelerated in the stop state, and when the set speed is reached,
  it continues to move at that speed and decelerates to stop before the target position.
- Within payload range the maximum speed is the same even if the mass of the object mounted on the slide changes.
- The time to reach the set speed depends on acceleration and deceleration.
- If the moving distance is short, the set speed may not be reached.
- If the distance traveled by the robot is long, the speed of the ball screw decreases depending on the number of dangerous revolutions.
- If the moving distance of the robot is long, the maximum speed will decrease according to the dangerous rotation speed of the ball screw.
- When calculating the moving time, consider not only the moving time of the set speed but also the time of acceleration and deceleration.
- The maximum speed indicated in the technical data for each model is the data calculated at 3000rpm, the number of revolutions of the servo motor.

Acceleration / Deceleration

- Acceleration is the rate of change of speed from stop to reaching set speed.
- The deceleration is the rate of change of the speed until the set speed is stopped.
- If the acceleration / deceleration time of the robot is shortened, the shock will increase due to rapid acceleration and deceleration, which may cause failure, breakage or malfunction of the product. It also gets a lifetime decrease.
- Acceleration and deceleration applied to numerical values of each model are calculated as 0.2sec for ball screw drive type and 0.3sec for belt drive type.
- When the acceleration / deceleration time becomes longer in the same speed, the payload increases.
  When the deceleration time becomes shorter, the payload decreases. Please apply according to the usage conditions.

Repeatability

- Positioning error when repeatedly moving from one point to another. It is not absolute positioning accuracy.
- Please identify the type of accuracy and tolerance value required.
- The Repeatability applied to each model is determined according to the drive type, and it changes according to the temperature change around the use.
  Please contact us if you are using in an environment with a lot of temperature changes.
- Acceleration and deceleration applied to each model are calculated as 0.2 sec for ball screw drive type and 0.3 sec for belt drive type.
- Please contact our sales representative if you require a repeat precision outside of specification.

Allowable Overhang Distance

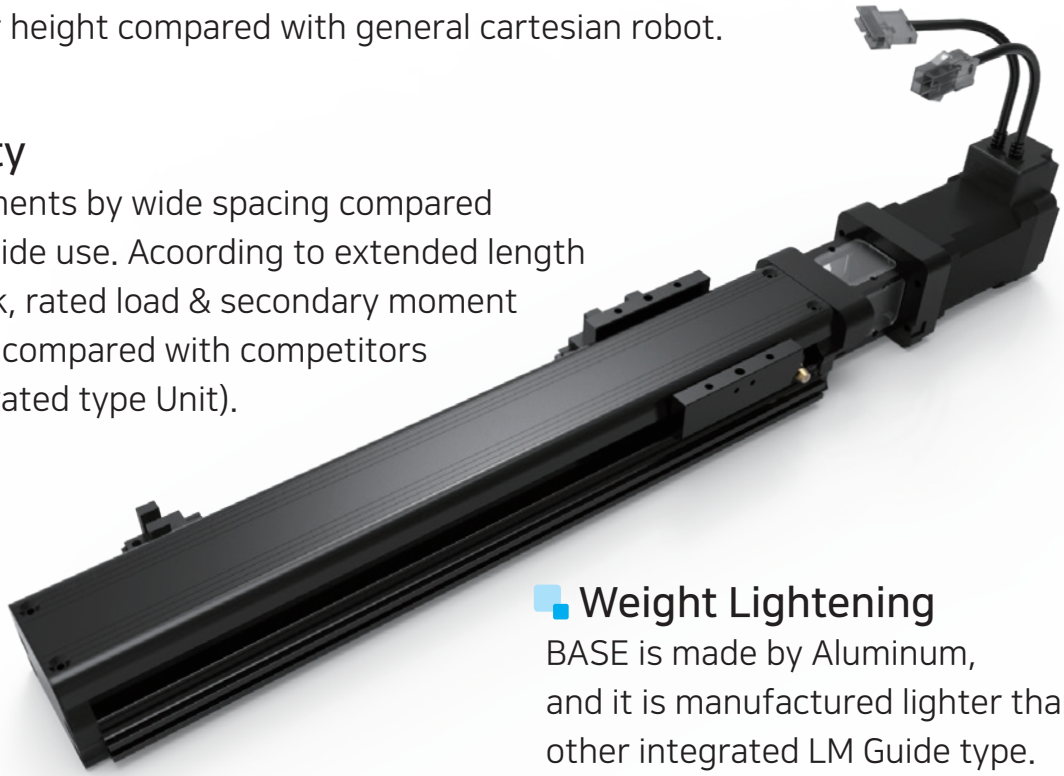
- The distance that robot can operate properly in case of object or bracket was not equipped at the center of robots slide.
- Please use within the suggested values considering the allowable overhang distance for each type of installation shown for each model.
- Allowable overhang distance can be differed according to position of payload and robot bodys installation type despite same payload.
- The allowable overhang distance for each model is the distance that can be taken when the moving distance is 1000mm, the speed is 1000mm / sec,
  the acceleration / deceleration time is 0.2sec, and the moving life is 15000km or 15000hr, depending on the performance of LM-guide installed as robot.
- In case of using over allowable overhang distance of robot may cause damage of malfunction and shortened service life because vibration and deflection can be risen.
- Allowable overhang distance increases when LM Guide is changed to high rigidity.
- Please contact our sales representatives if you require a distance outside the standard.

Compact Design

Compact Design It is designed and manufactured
30%~40% lower height compared with general cartesian robot.

High Rigidity

Allows high moments by wide spacing compared
to normal LM Guide use. Acoording to extended length
of the slide block, rated load & secondary moment
are improved as compared with competitors
(LM Guide integrated type Unit).



Weight Lightening

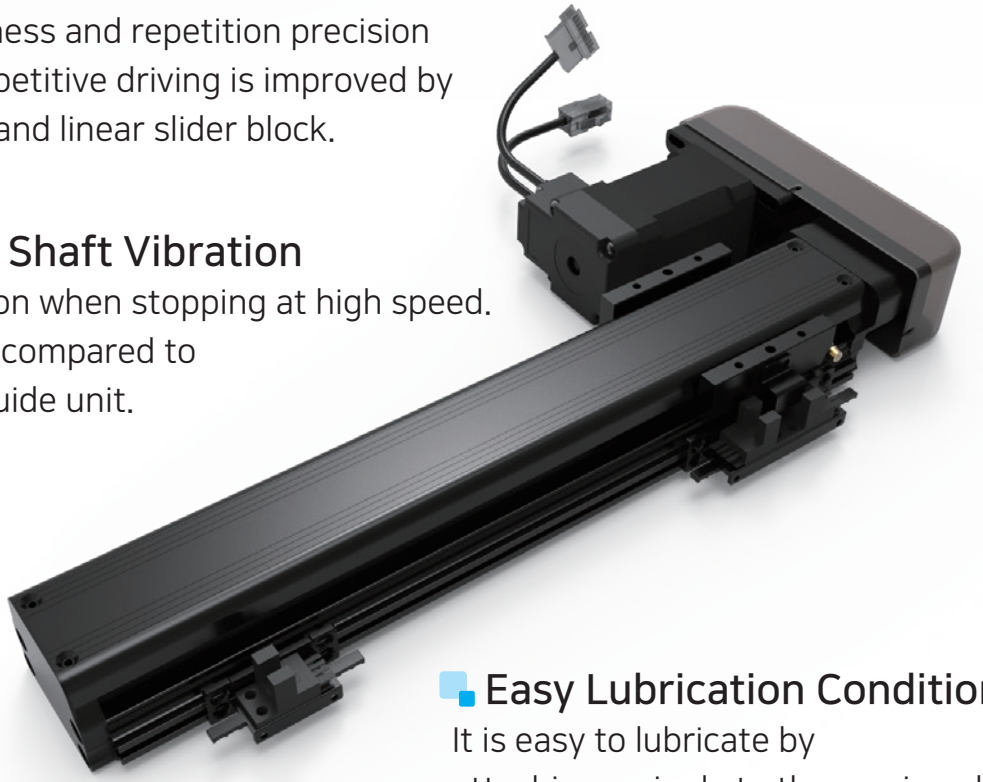
BASE is made by Aluminum,
and it is manufactured lighter than
other integrated LM Guide type.

Slider Integration

The weakness of stiffness and repetition precision
caused by frequent repetitive driving is improved by
integrating ball screw and linear slider block.

Improvement of Shaft Vibration

Improved shaft vibration when stopping at high speed.
Improved setting time compared to
other integrated LM Guide unit.



Easy Lubrication Conditions

It is easy to lubricate by
attaching a nipple to the moving slider.

PHM S series

PHM	S	030	-	S	-	150	-	T	28	L	A	B	-	L	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

030	30mm

③ Shape

S	Motor Straight

※For L, R, U shape, body size 030 is not available.

⑤ Motor Information

T	Step

⑥ Motor Capacity

Step Motor	Size
	28

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS030	Ø06x01 Ø06x06					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]
D	16,000[ppr]

※ Encoder Resolution 16,000[ppr] can be used only 28mm size.

⑨ Motor Brake

None	Without Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
L	Ø06	1mm
N	Ø06	6mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

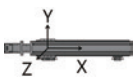
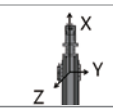
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

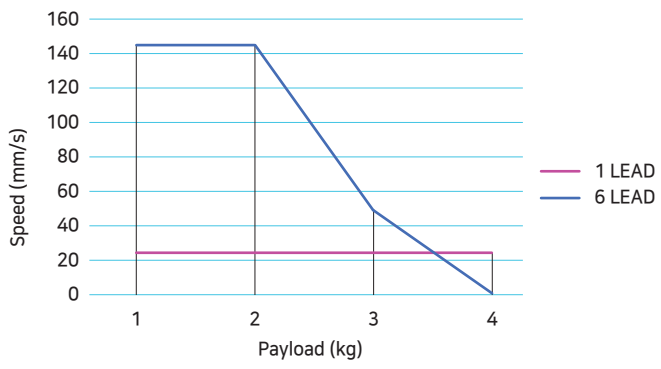
■ Allowable Overhang Distance

Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 2kg	3kg	4kg
Horizontal Use		X	60	40	30
		Y	100	70	50
		Z	120	100	50
Wall Mount Use		X	48	32	24
		Y	100	80	40
		Z	80	56	40
Vertical Use		X	150	100	50
		Y	55	35	25
		Z	50	30	20

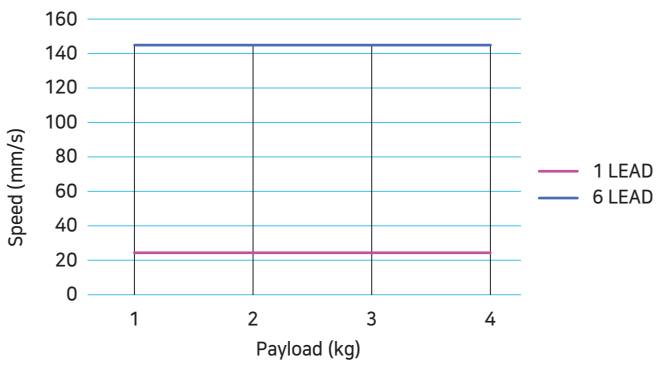
■ Features

Body Size	30mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 1mm, 6mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Impossible
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

■ HiSTEP-28L (Vertical) ※ Based on 100mm stroke

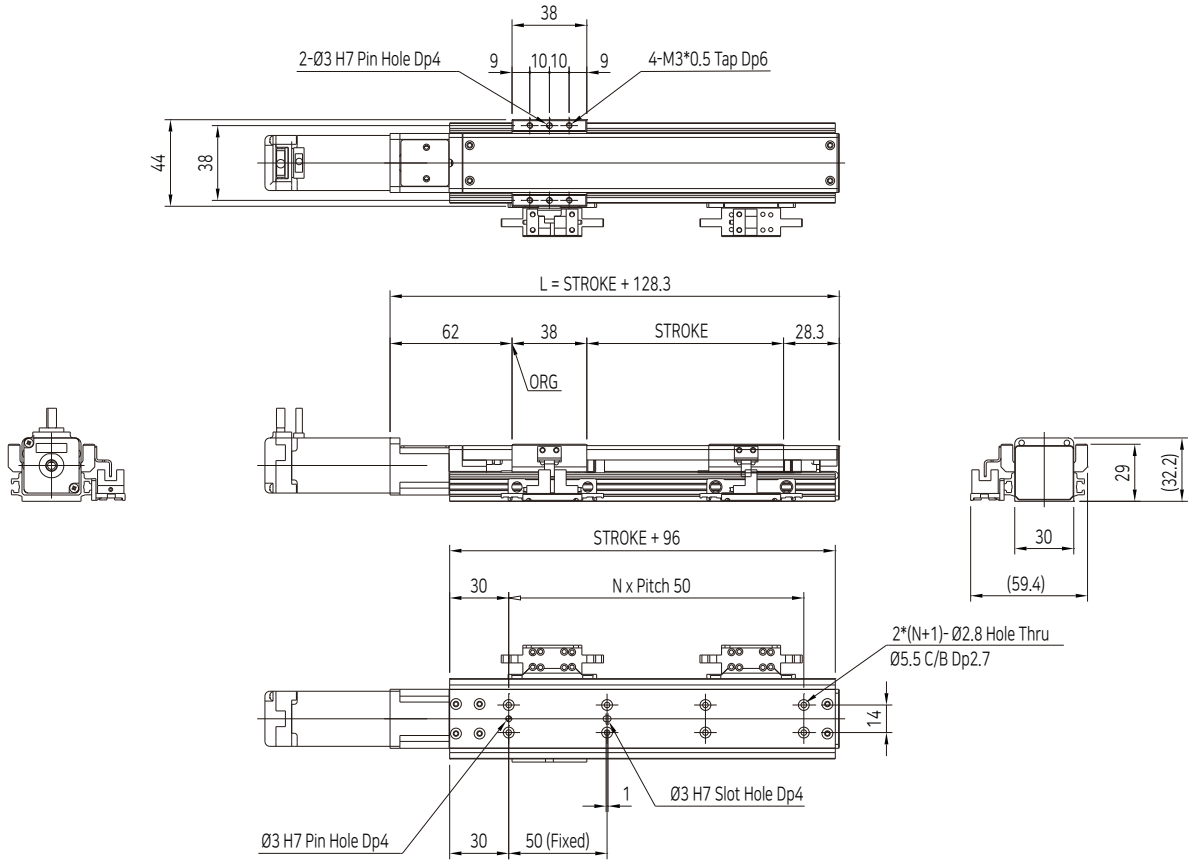


■ HiSTEP-28L (Horizontal) ※ Based on 100mm stroke



Dimension(mm)

PHMS030-S-□-T28L



PHM S series

PHM	S	040	-	S	-	250	-	T	42	L	A	B	-	L	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

040	40mm

③ Shape

S	Motor Straight
L	Motor Parallel Left
R	Motor Parallel Right
U	Motor Parallel Under

⑤ Motor Information

T	Step

⑥ Motor Capacity

	Size
Step Motor	42

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS040	Ø08x02					
	Ø08x05					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]

⑨ Motor Brake

None	Without Brake
B	With Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
L	Ø08	2mm
N	Ø08	5mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

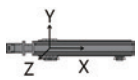
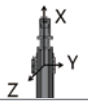
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

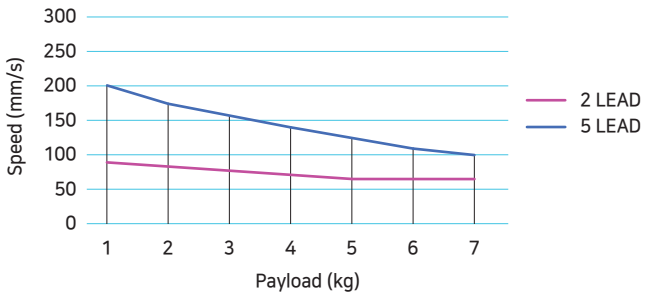
■ Allowable Overhang Distance

Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 2kg	3kg	4kg
Horizontal Use		X	60	40	30
		Y	100	70	50
		Z	120	100	50
Wall Mount Use		X	48	32	24
		Y	100	80	40
		Z	80	56	40
Vertical Use		X	150	100	50
		Y	55	35	25
		Z	50	30	20

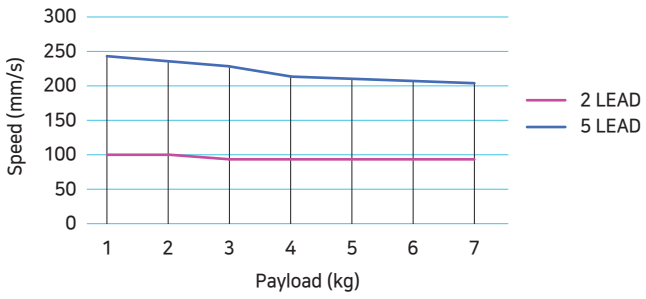
■ Features

Body Size	40mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 2mm, 5mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Standard
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

■ HiSTEP-42L (Vertical) ※ Based on 100mm stroke

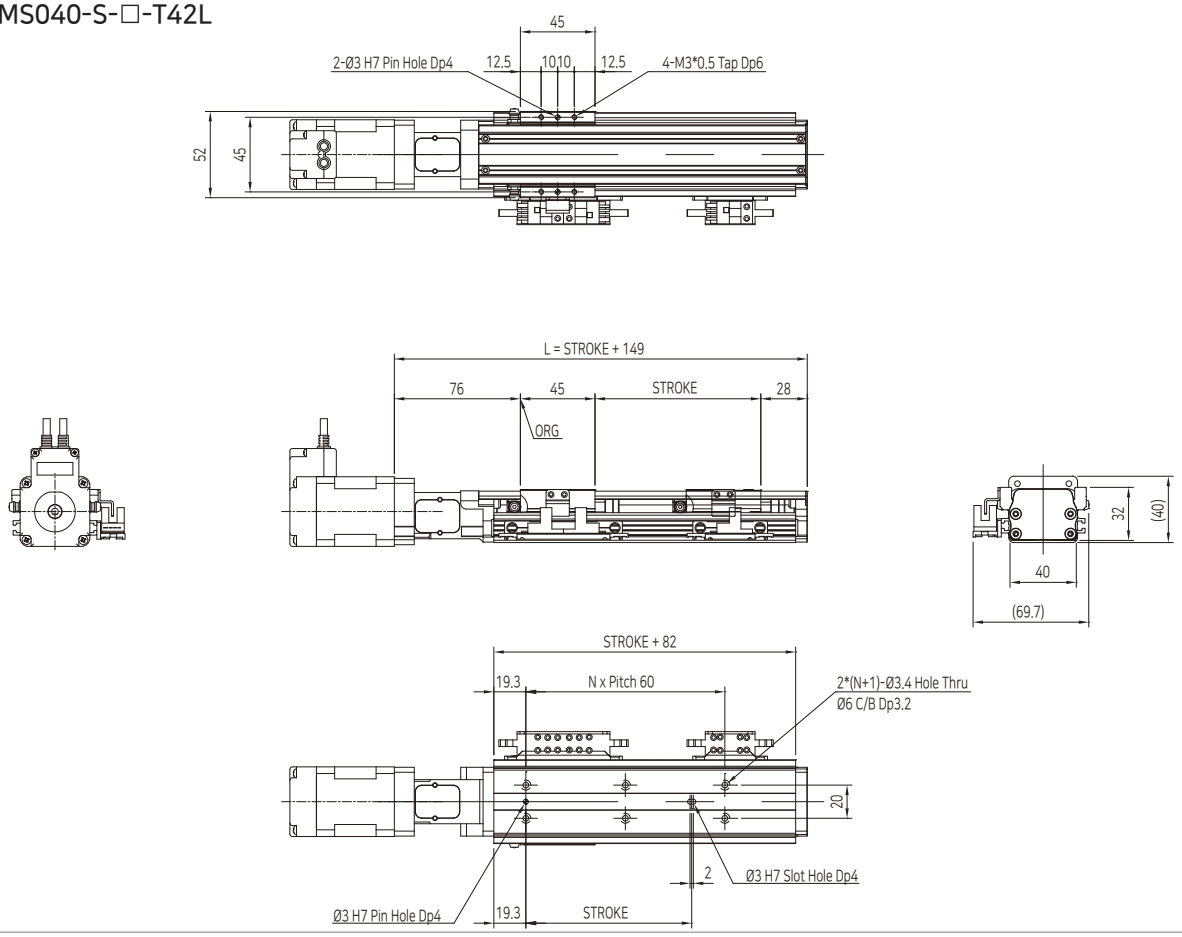


■ HiSTEP-42L (Horizontal) ※ Based on 100mm stroke

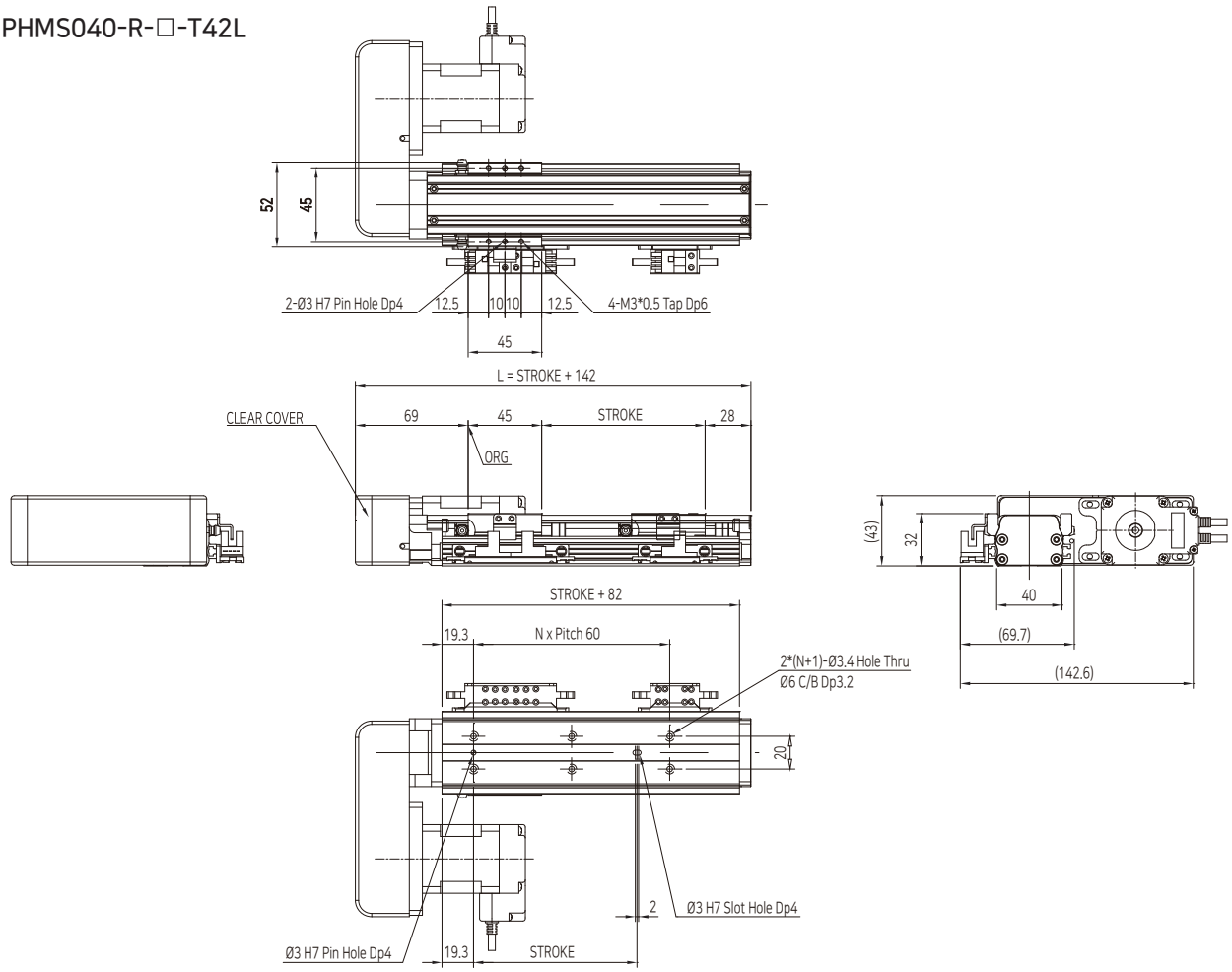


Dimension(mm)

PHMS040-S-□-T42L

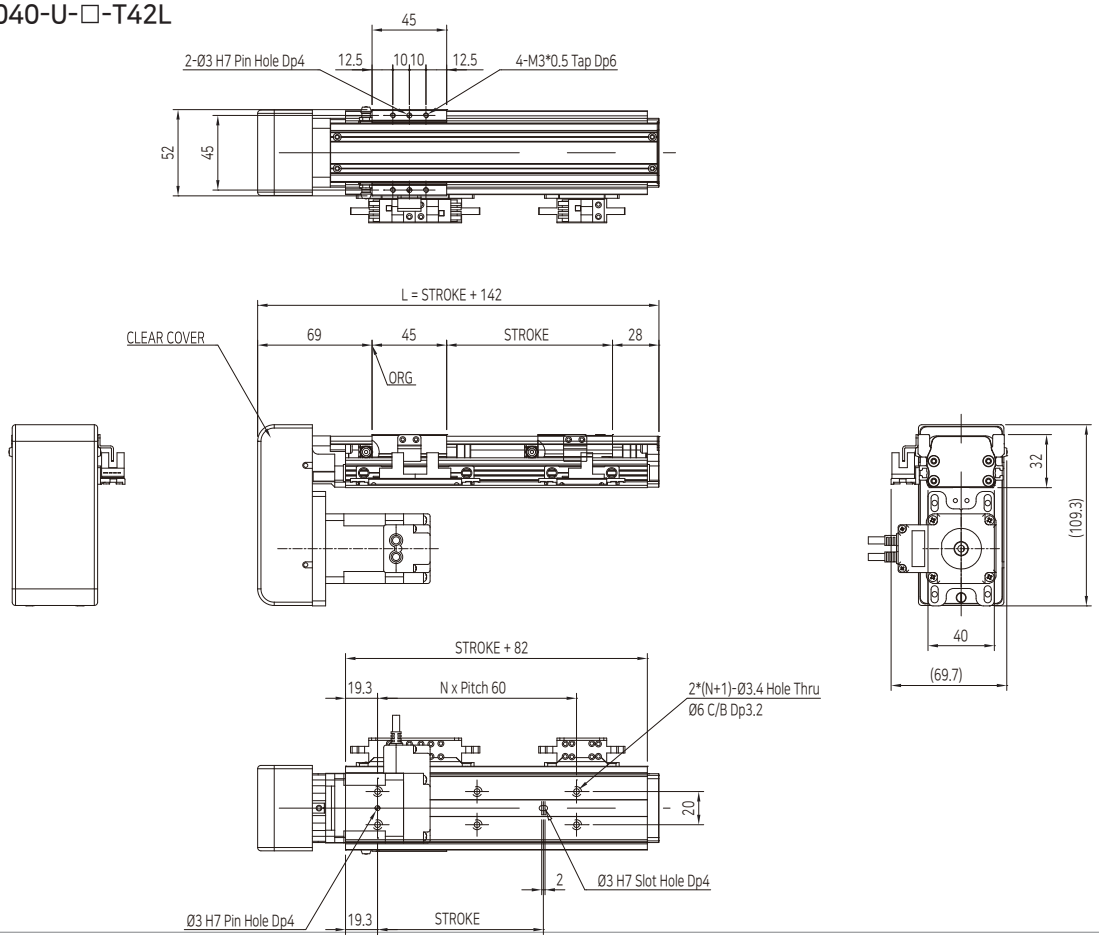


PHMS040-R-□-T42L

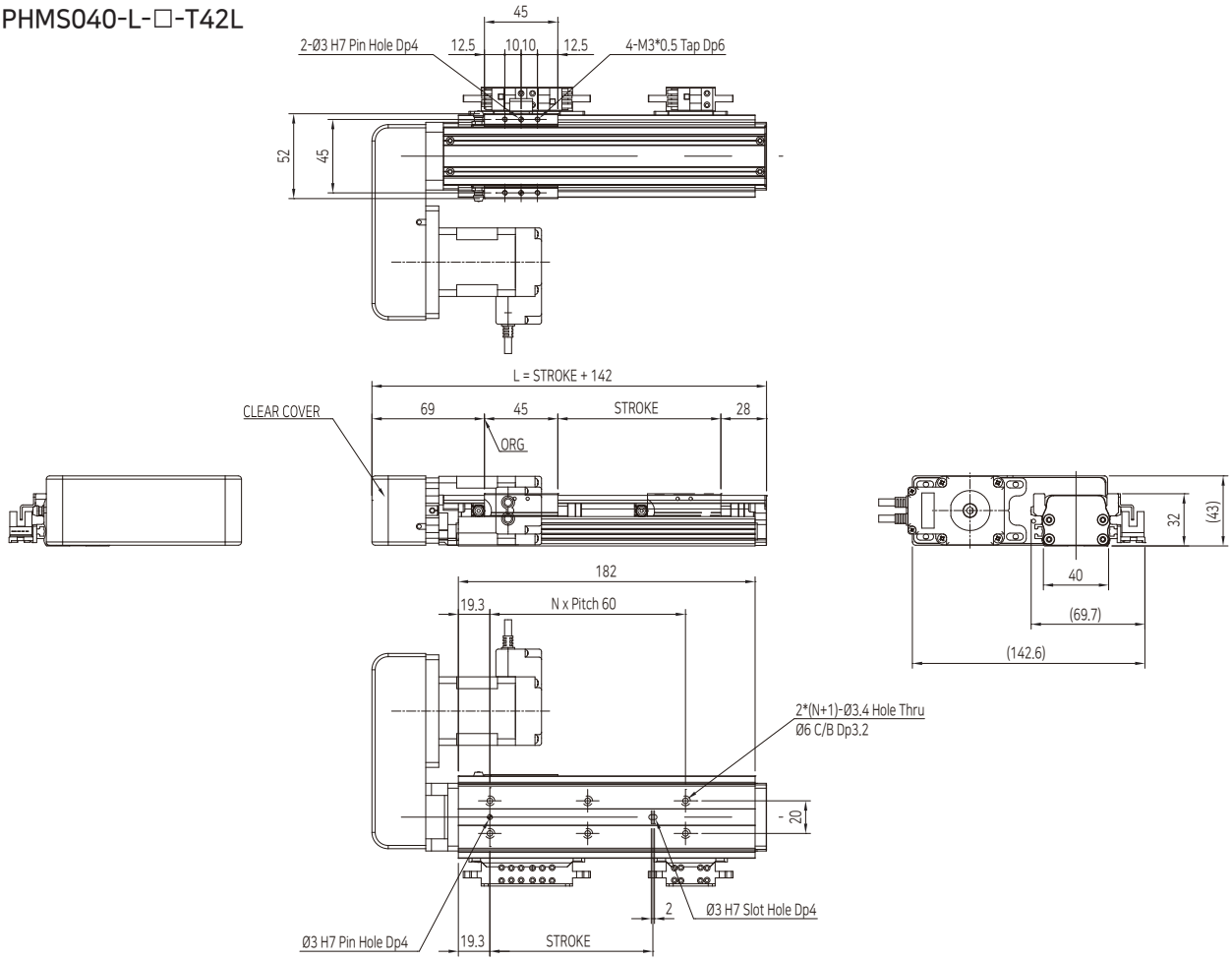


Dimension(mm)

PHMS040-U-□-T42L



PHMS040-L-□-T42L



PHM S series

PHM	S	050	-	S	-	500	-	T	42	L	A	B	-	L	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

050	50mm

③ Shape

S	Motor Straight
L	Motor Parallel Left
R	Motor Parallel Right
U	Motor Parallel Under

⑤ Motor Information

T	Step

⑥ Motor Capacity

	Size
Step Motor	42
	56

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS050	Ø12x05					
	Ø12x10					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]

⑨ Motor Brake

None	Without Brake
B	With Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
L	Ø12	5mm
N	Ø12	10mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

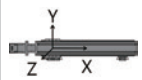
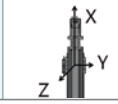
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

■ Allowable Overhang Distance

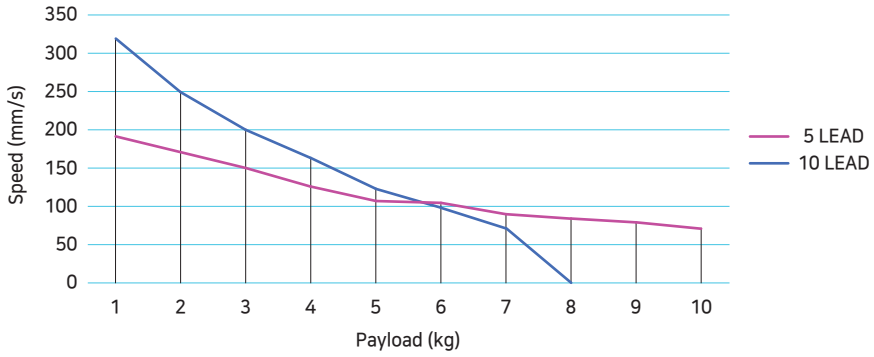
Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 4kg	5kg	10kg
Horizontal Use		X	85	70	25
		Y	160	130	55
		Z	100	100	100
Wall Mount Use		X	82	65	20
		Y	100	100	100
		Z	105	115	40
Vertical Use		X	100	100	100
		Y	90	70	30
		Z	80	62	20

■ Features

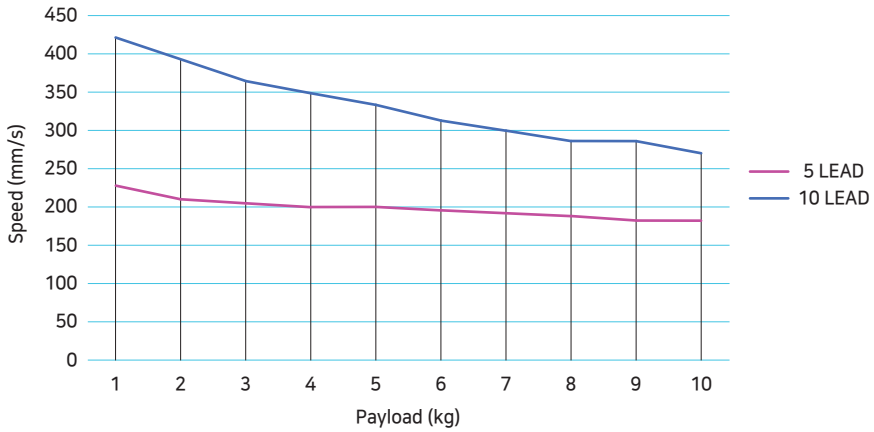
Body Size	50mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 5mm, 10mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Standard
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

Specifications

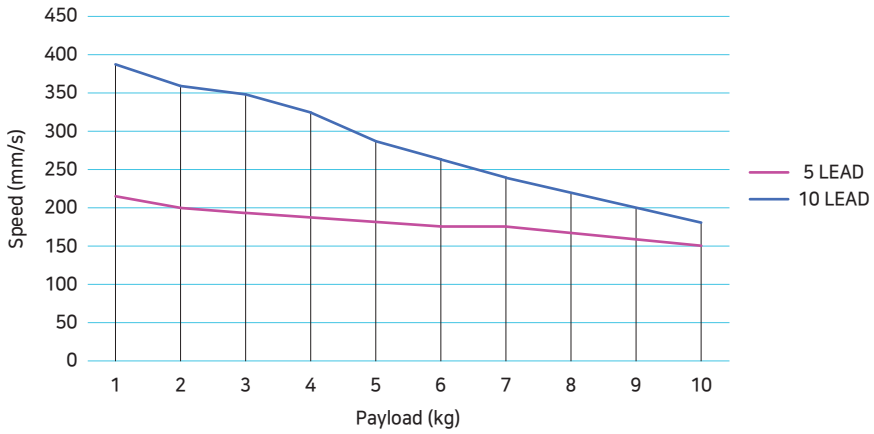
■ HiSTEP-42L (Vertical) ※ Based on 150mm stroke



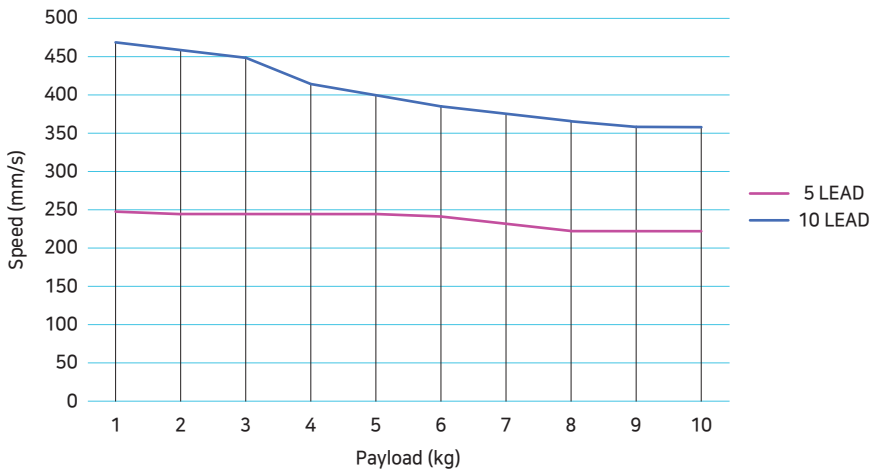
■ HiSTEP-42L (Horizontal) ※ Based on 150mm stroke



■ HiSTEP-56L (Vertical) ※ Based on 150mm stroke

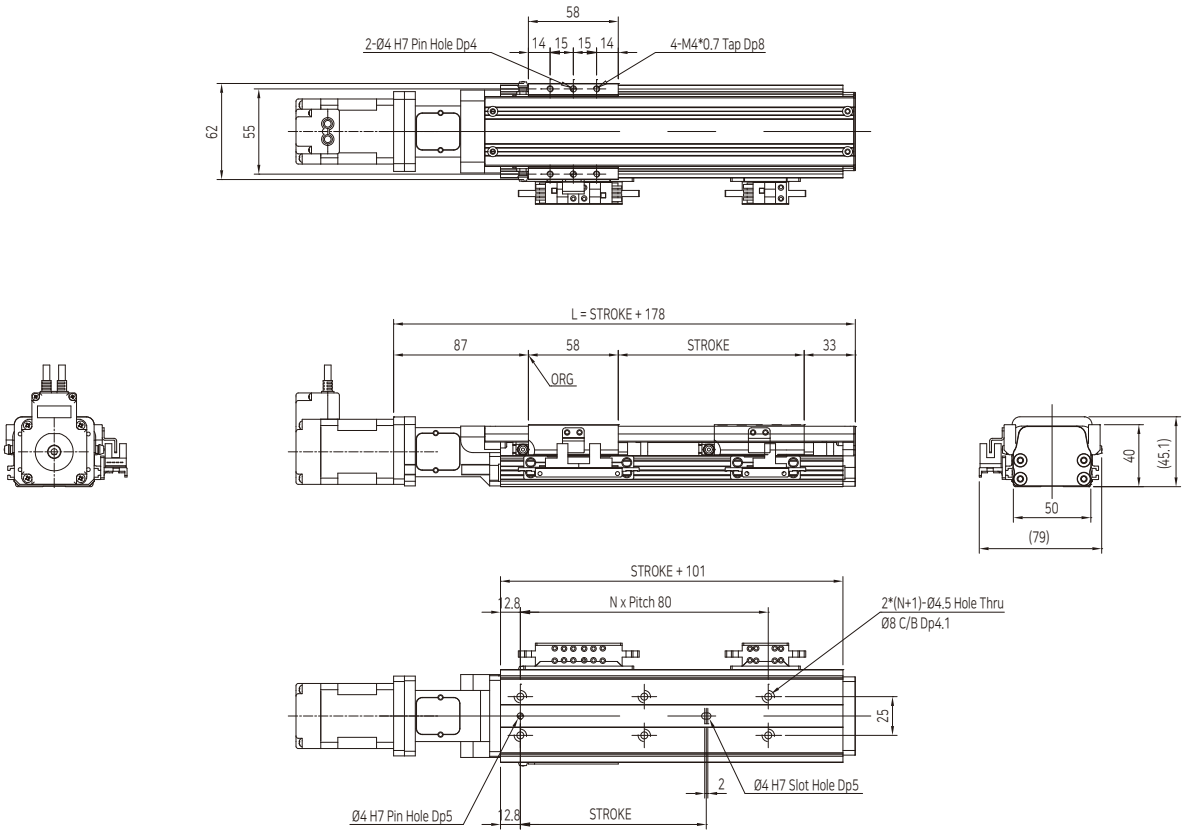


■ HiSTEP-56L (Horizontal) ※ Based on 150mm stroke

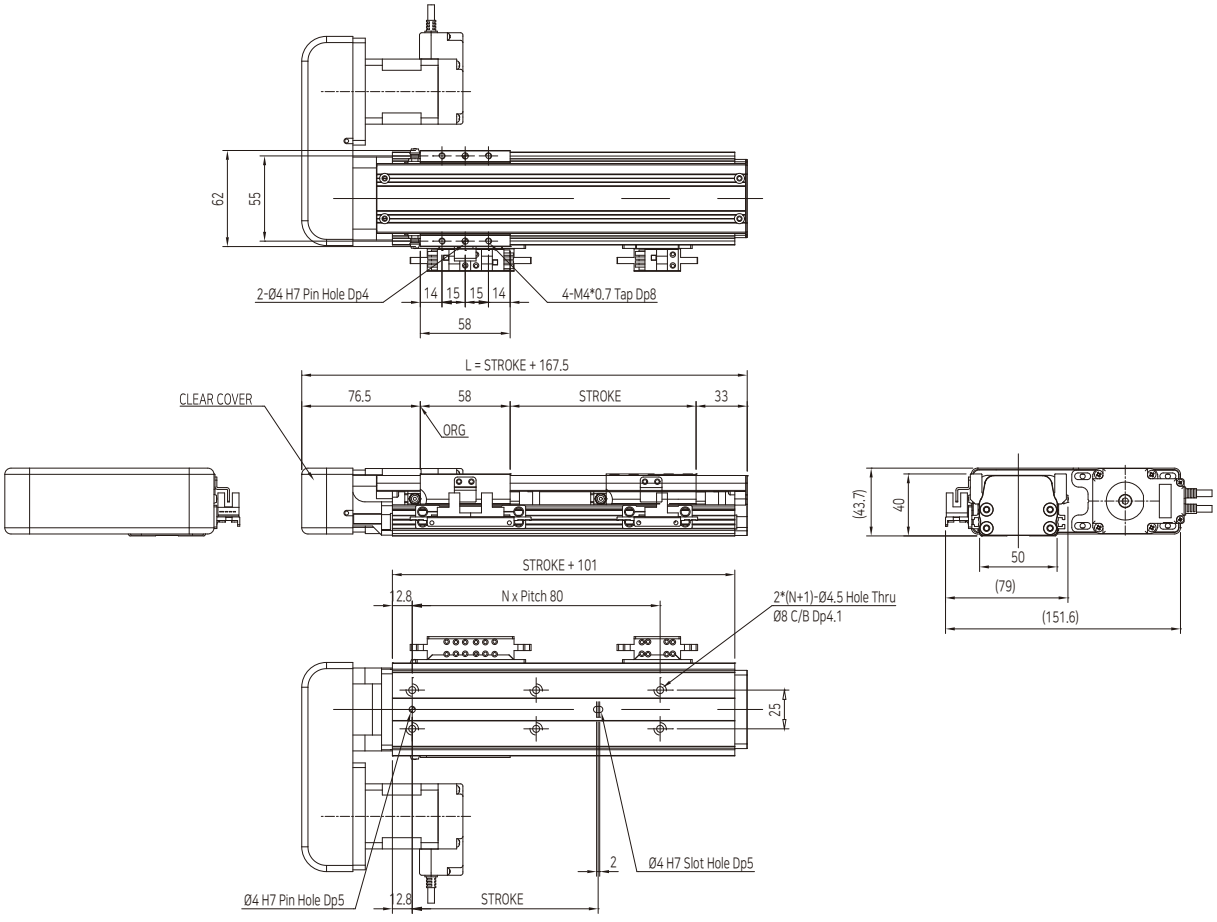


Dimension(mm)

PHMS050-S-□-T42L

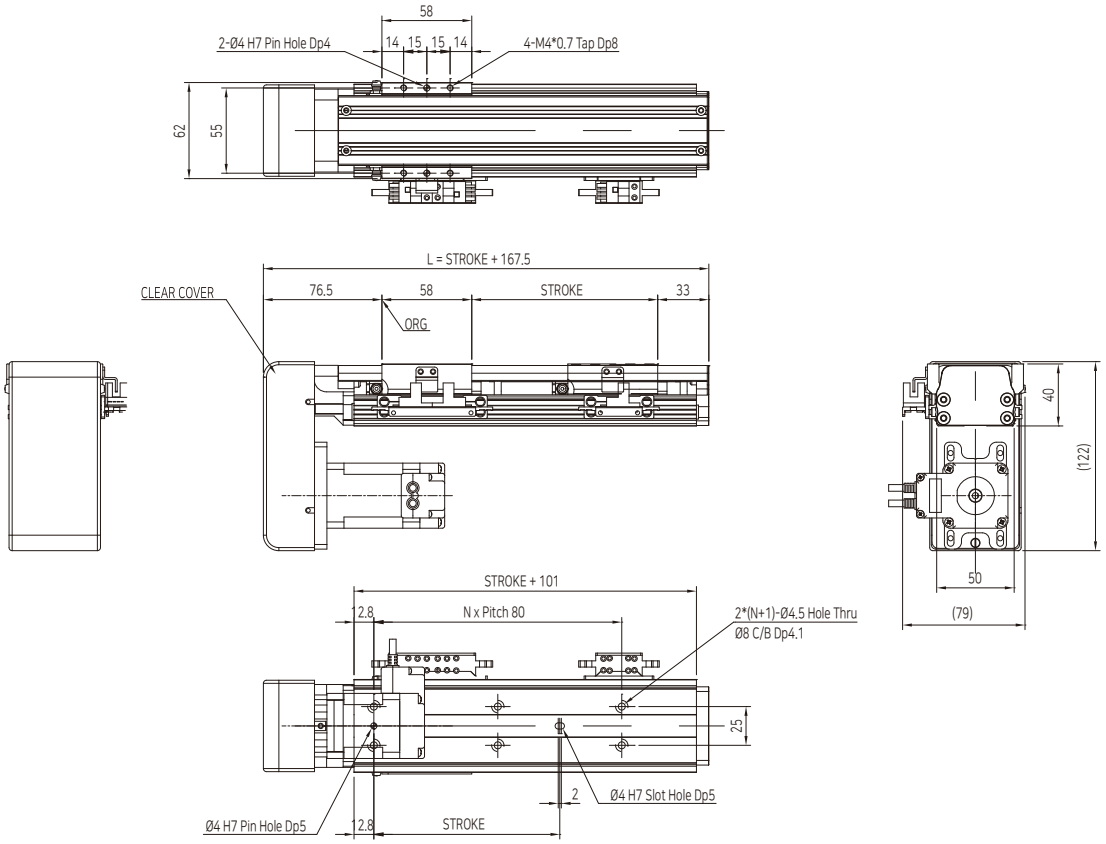


PHMS050-R-□-T42L

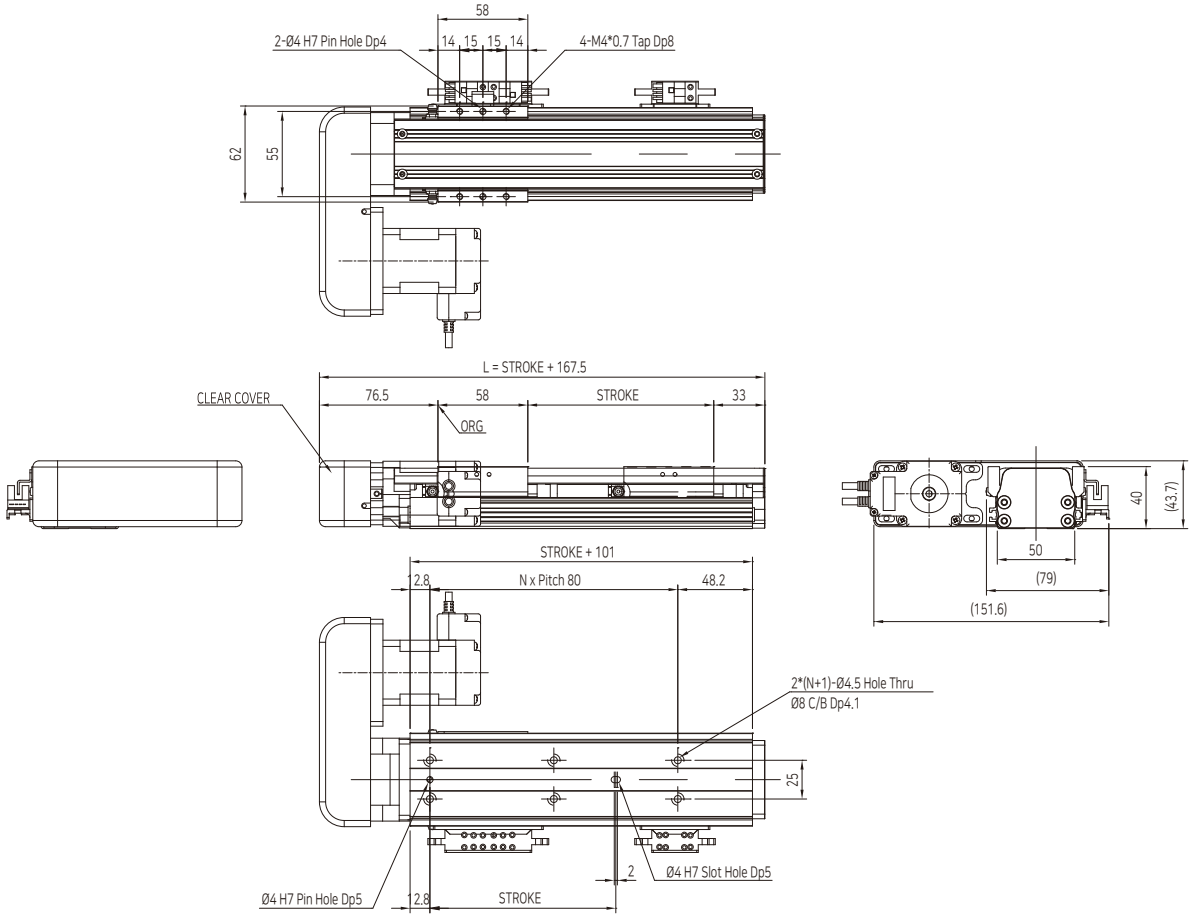


Dimension(mm)

PHMS050-U-□-T42L



PHMS050-L-□-T42L



PHM S series

PHM	S	060	-	S	-	700	-	T	42	L	A	B	-	L	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

060	60mm

③ Shape

S	Motor Straight
L	Motor Parallel Left
R	Motor Parallel Right
U	Motor Parallel Under

⑤ Motor Information

T	Step

⑥ Motor Capacity

	Size
Step Motor	42
	56
	60

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS060	Ø12x05					
	Ø12x10					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]

⑨ Motor Brake

None	Without Brake
B	With Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
L	Ø12	5mm
N	Ø12	10mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

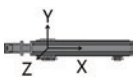
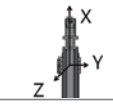
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

■ Allowable Overhang Distance

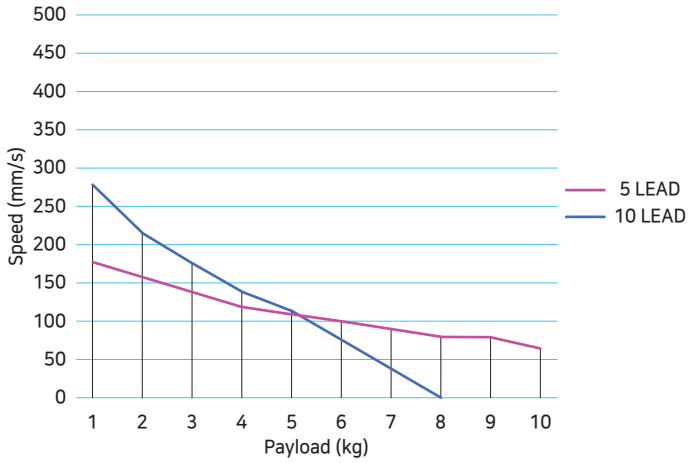
Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 4kg	5kg	10kg
Horizontal Use		X	100	77	32
		Y	200	160	72
		Z	120	120	120
Wall Mount Use		X	95	74	28
		Y	120	120	120
		Z	190	145	55
Vertical Use		X	120	120	120
		Y	100	80	35
		Z	92	70	26

■ Features

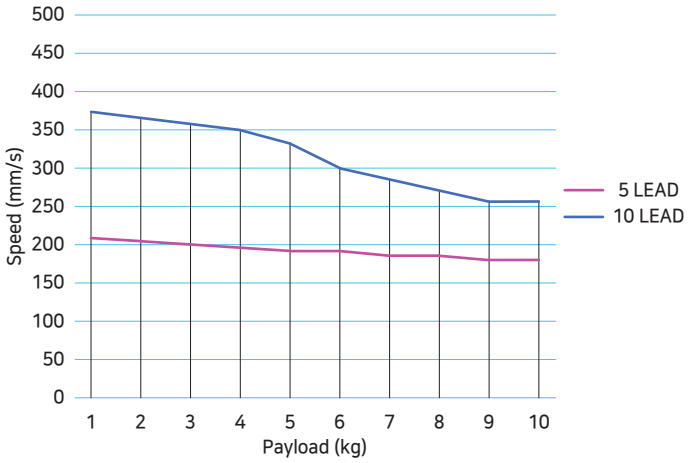
Body Size	60mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 5mm, 10mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Standard
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

Specifications

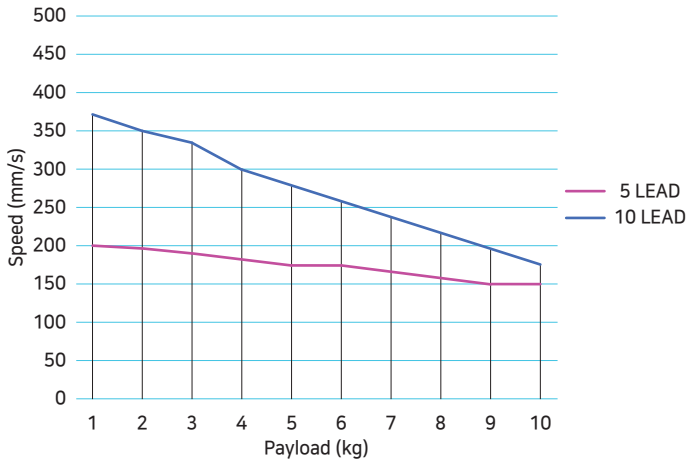
■ HiSTEP-42L (Vertical) ※ Based on 150mm stroke



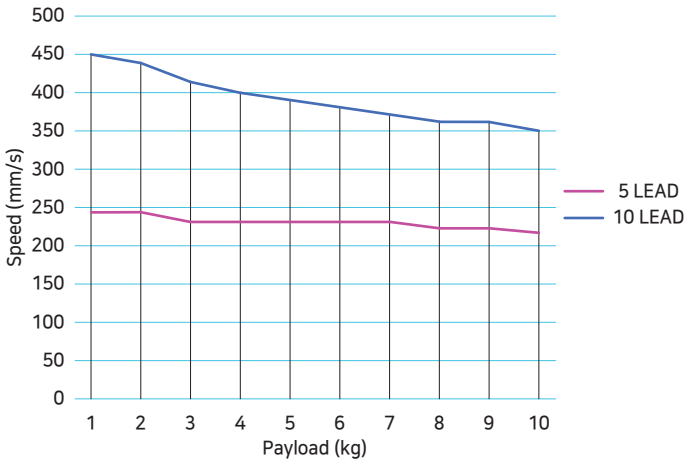
■ HiSTEP-42L (Horizontal) ※ Based on 150mm stroke



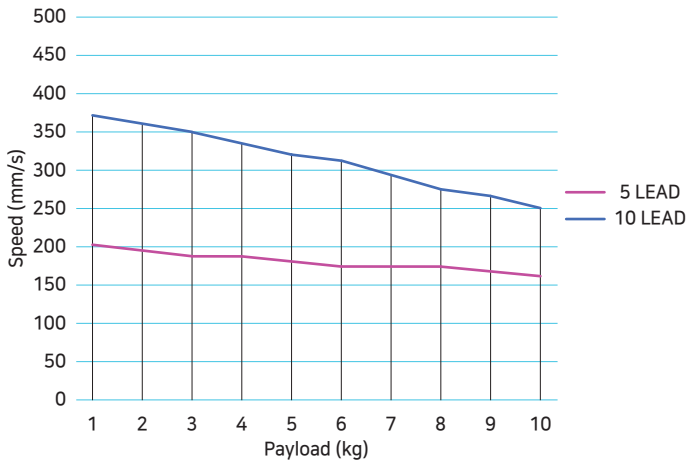
■ HiSTEP-56L (Vertical) ※ Based on 150mm stroke



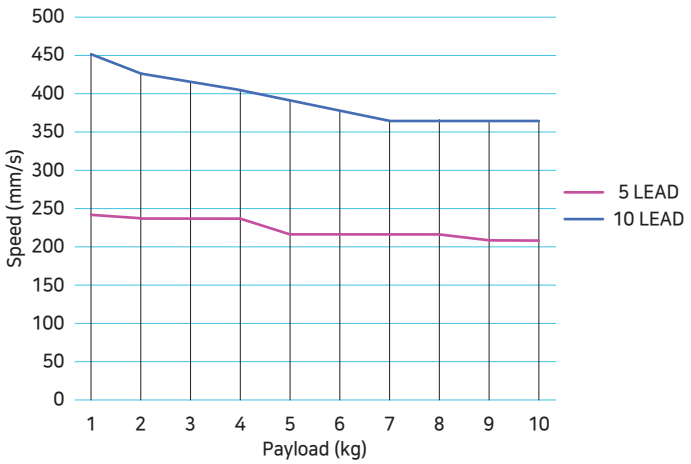
■ HiSTEP-56L (Horizontal) ※ Based on 150mm stroke



■ HiSTEP-60L (Vertical) ※ Based on 150mm stroke

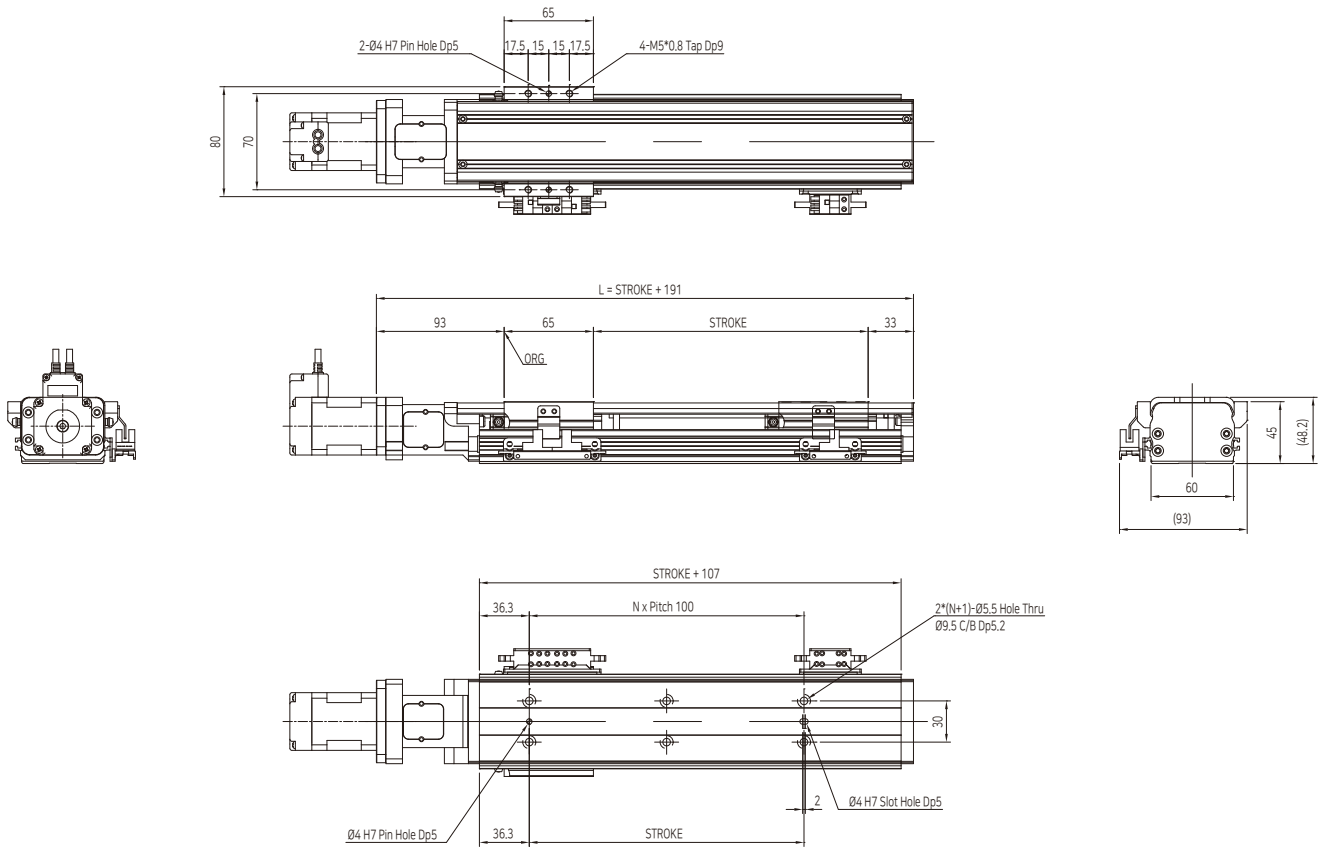


■ HiSTEP-60L (Horizontal) ※ Based on 150mm stroke

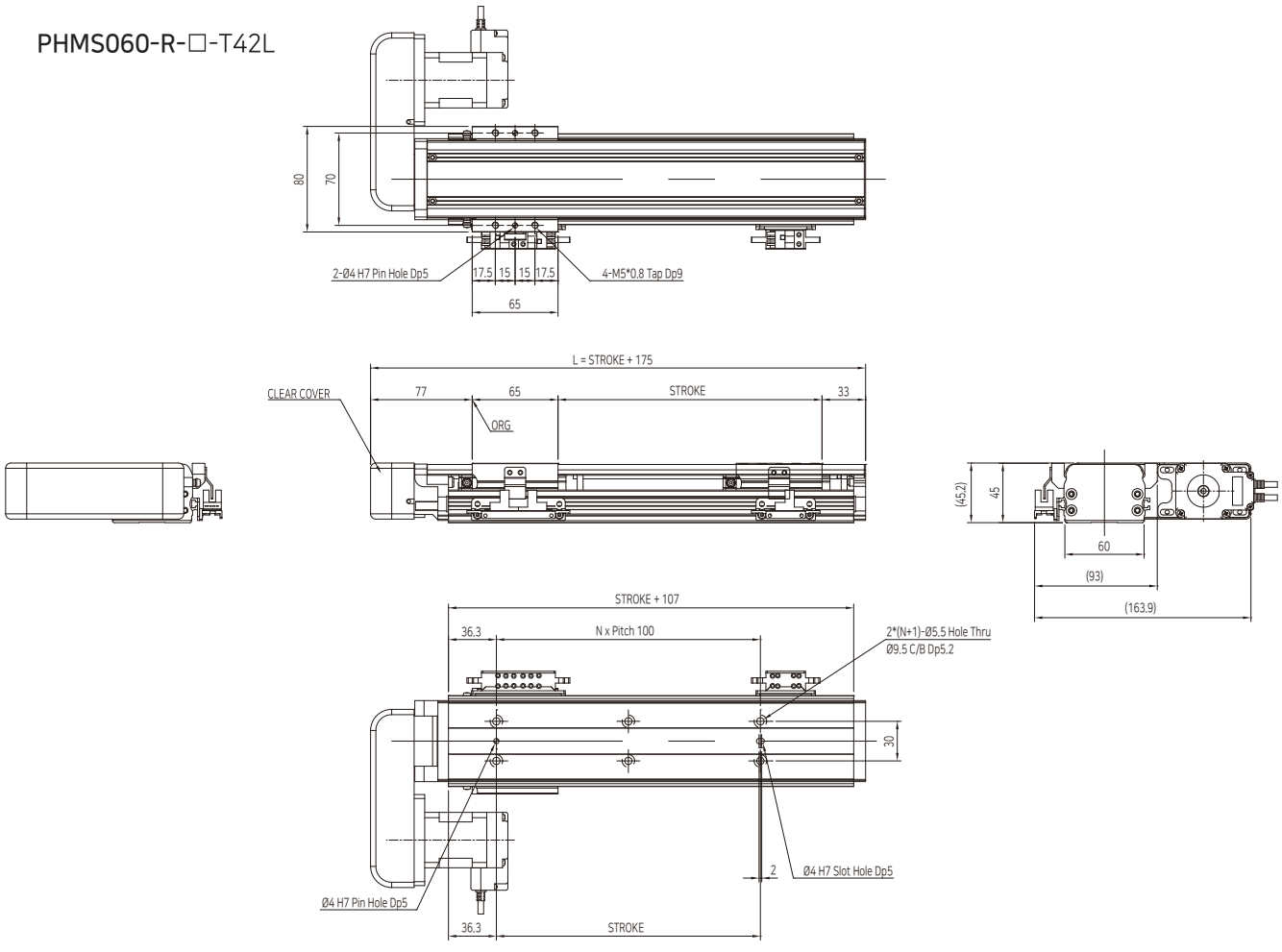


Dimension(mm)

PHMS060-S-□-T42L

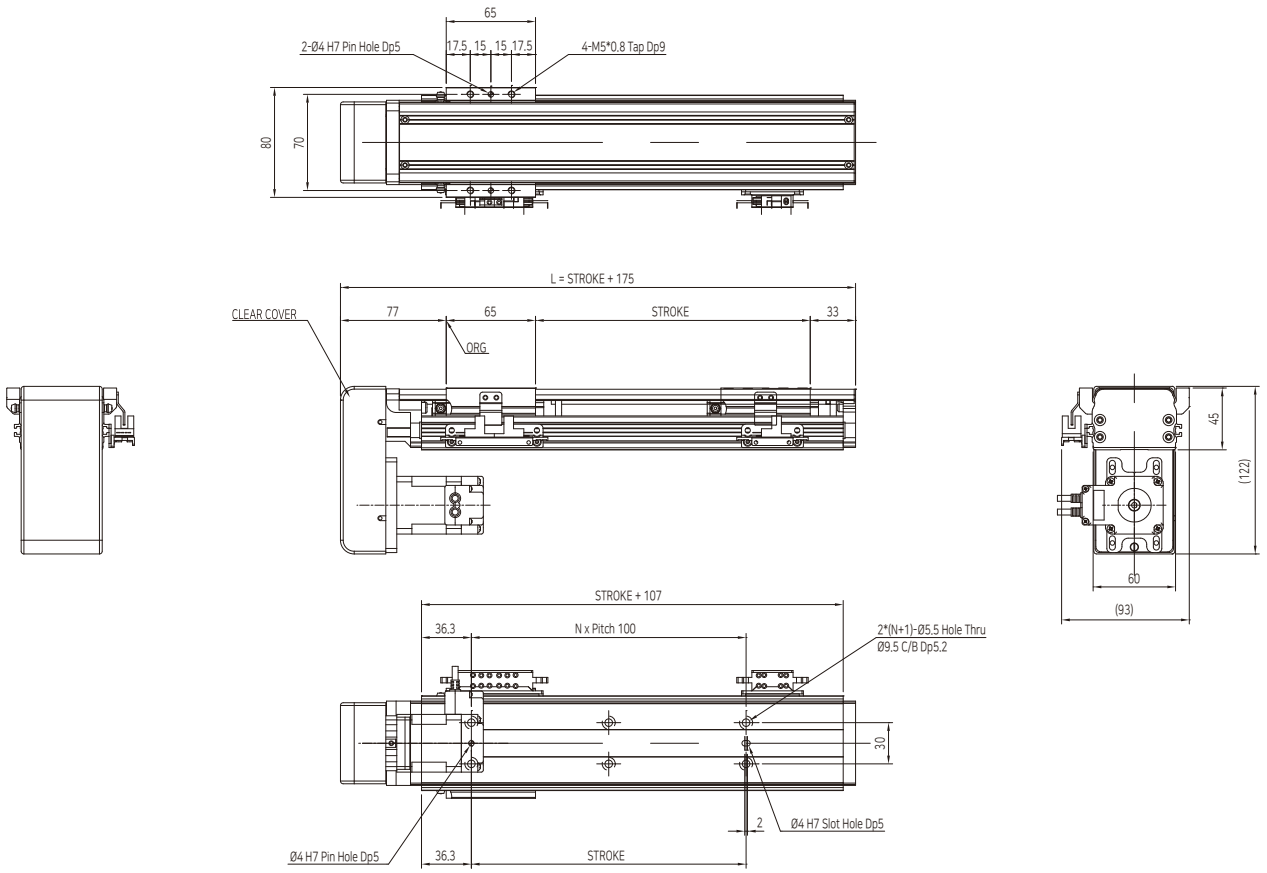


PHMS060-R-□-T42L

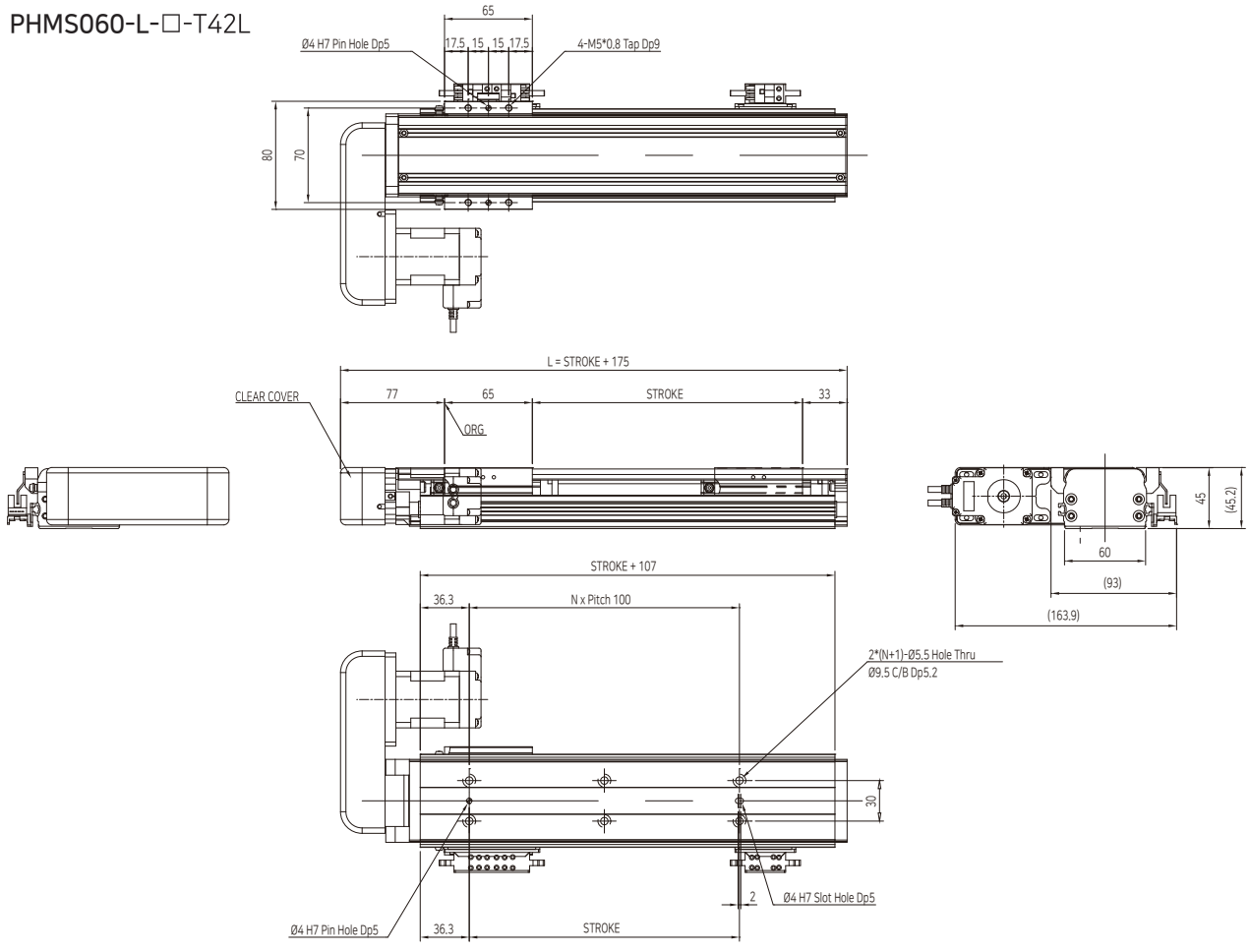


Dimension(mm)

PHMS060-U-□-T42L



PHMS060-L-□-T42L



PHM S series

PHM	S	090	-	S	-	1000	-	T	60	L	A	B	-	N	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

090	90mm

③ Shape

S	Motor Straight
L	Motor Parallel Left
R	Motor Parallel Right
U	Motor Parallel Under

⑤ Motor Information

T	Step

⑥ Motor Capacity

	Size
Step Motor	60

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS090	Ø15x10					
	Ø15x20					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]

⑨ Motor Brake

None	Without Brake
B	With Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
N	Ø15	10mm
H	Ø15	20mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

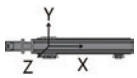
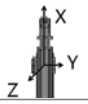
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

■ Allowable Overhang Distance

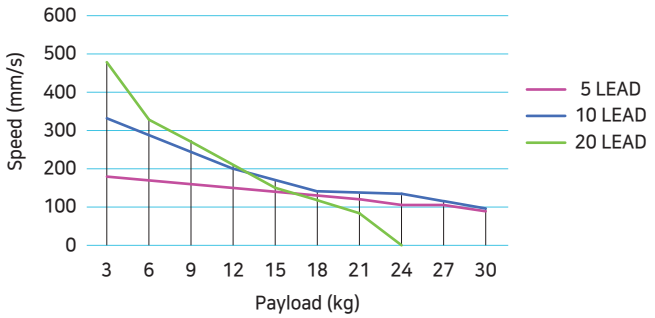
Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 10kg	20kg	30kg
Horizontal Use		X	143	105	62
		Y	310	222	140
		Z	100	100	100
Wall Mount Use		X	138	98	58
		Y	100	100	100
		Z	285	200	118
Vertical Use		X	100	100	100
		Y	145	105	66
		Z	132	92	54

■ Features

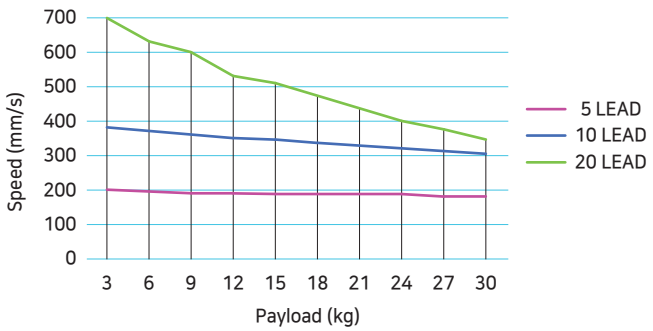
Body Size	90mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 10mm, 20mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Standard
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

※ Ball Screw Lead 5mm is available as a special order.

■ HiSTEP-60L (Vertical) ※ Based on 300mm stroke

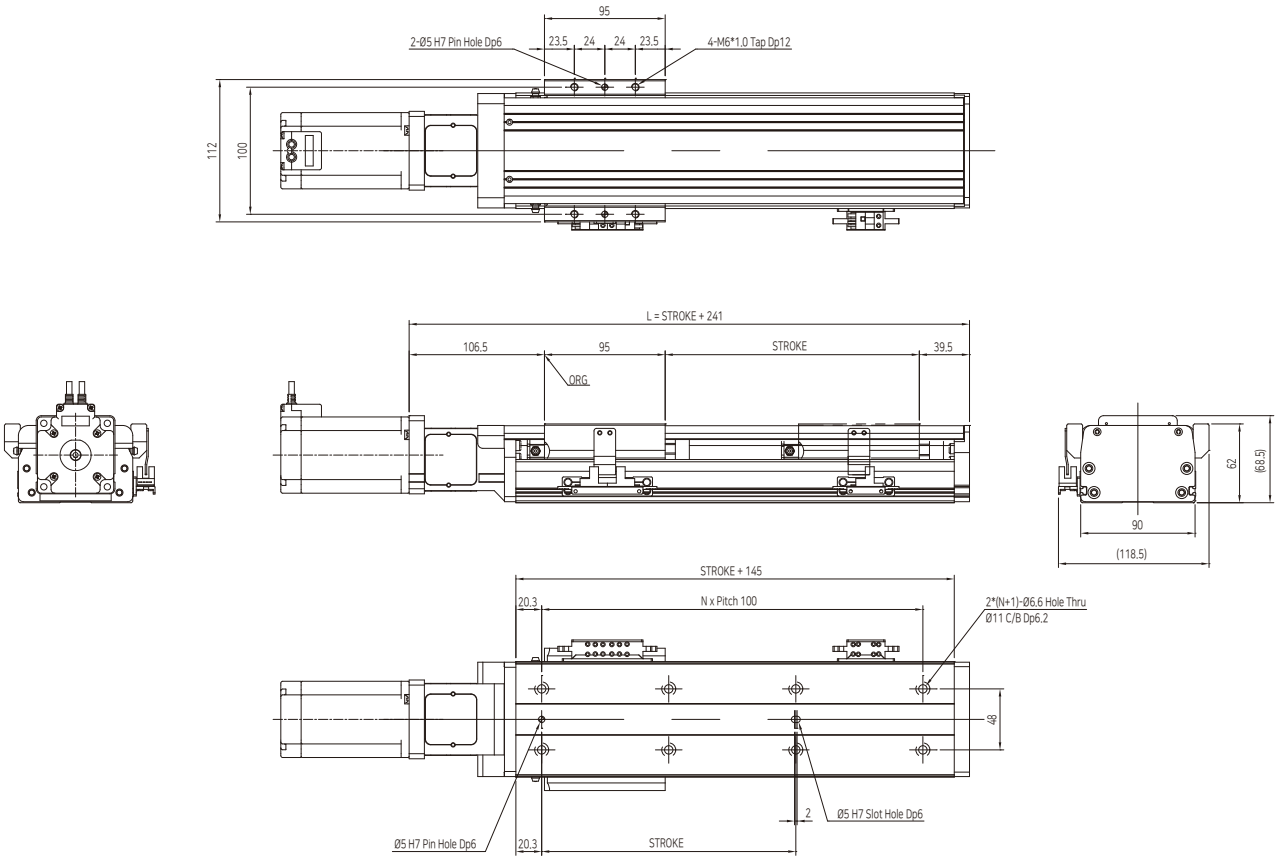


■ HiSTEP-60L (Horizontal) ※ Based on 300mm stroke

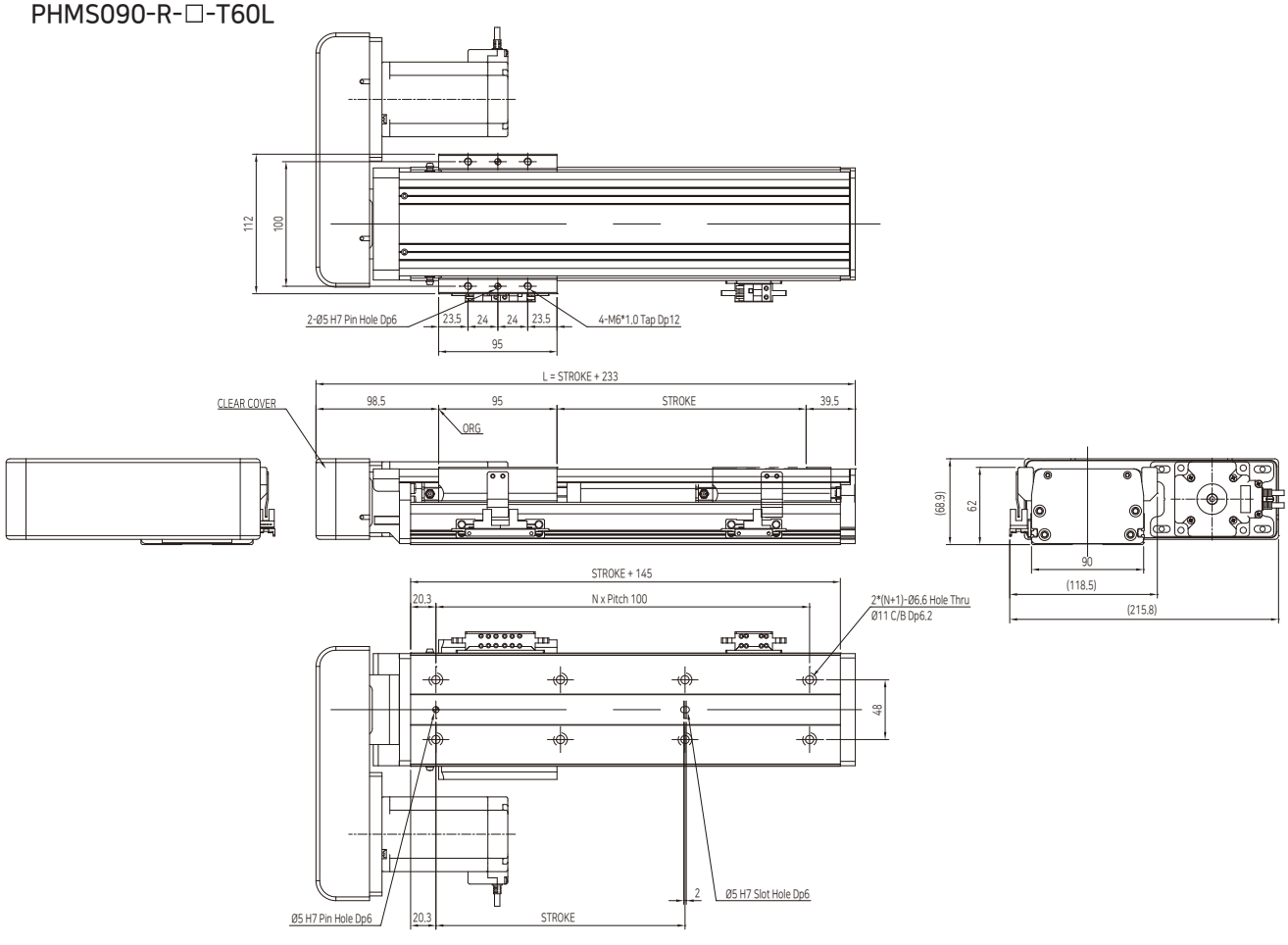


Dimension(mm)

PHMS090-S-□-T60L

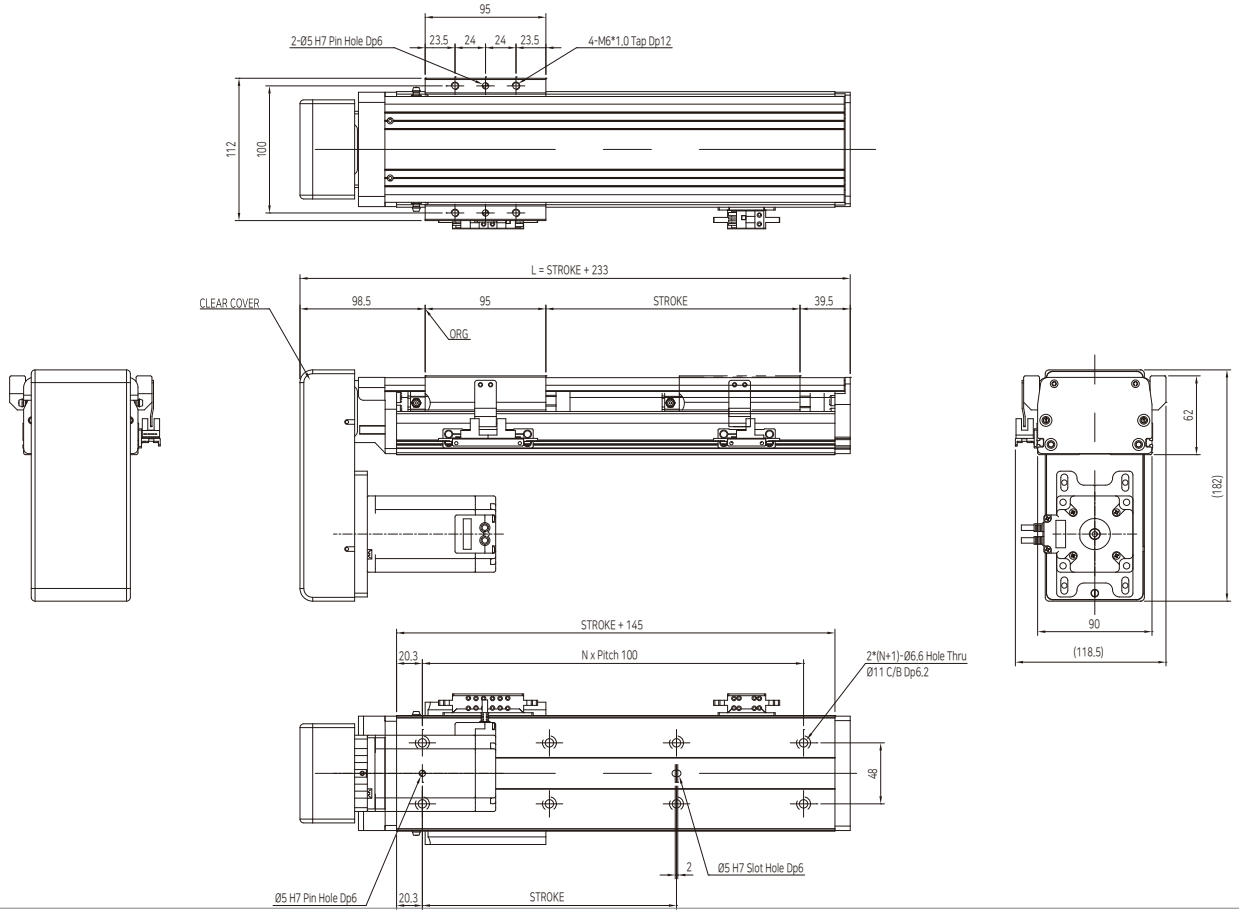


PHMS090-R-□-T60L

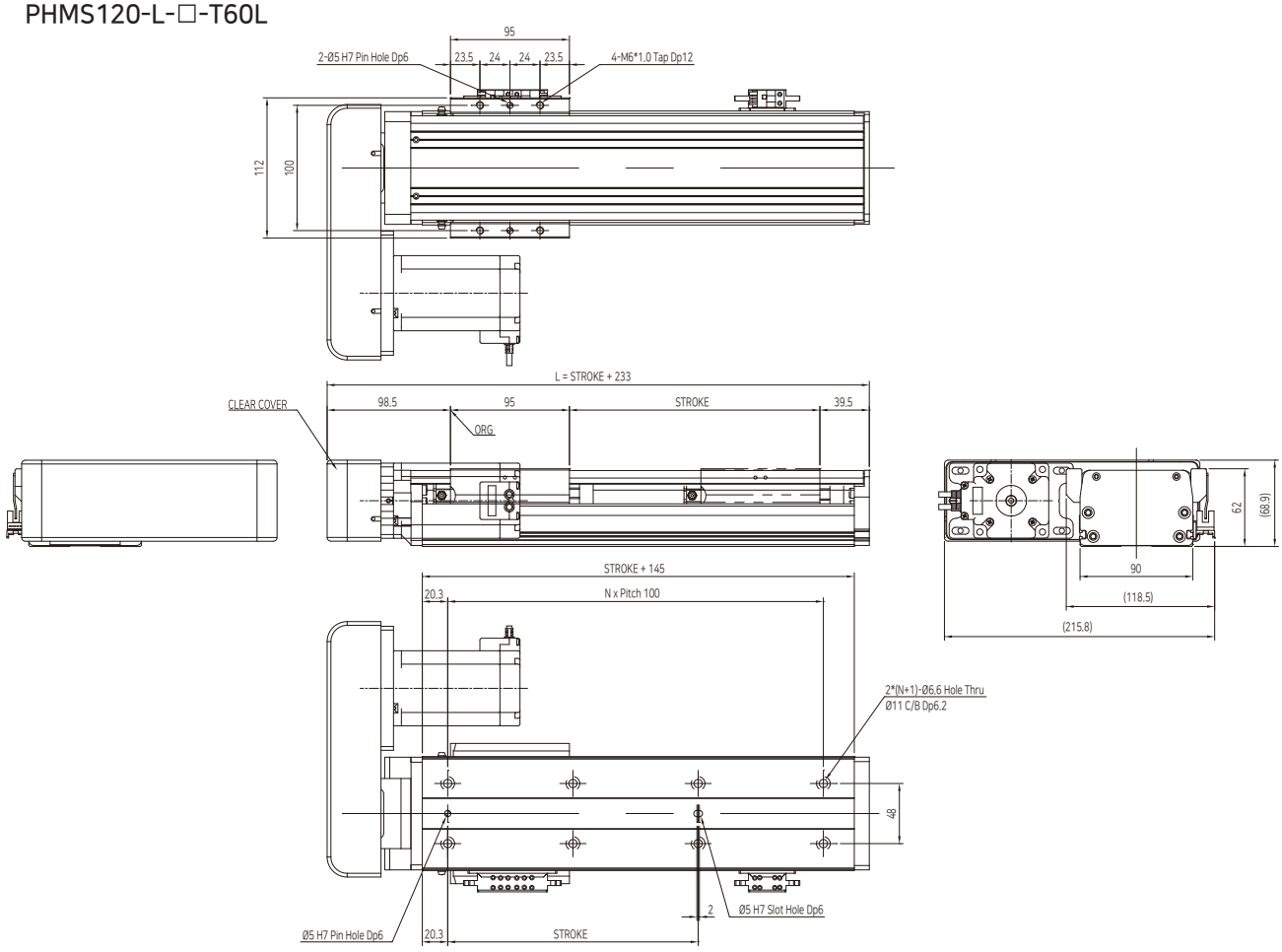


Dimension(mm)

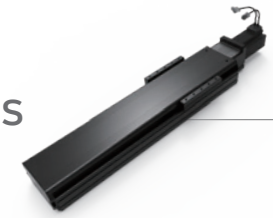
PHMS090-U-□-T60L



PHMS120-L-□-T60L



PHM S series



PHM	S	120	-	S	-	1000	-	T	60	L	A	B	-	N	-	E1	-	S1	-	SST
	①	②		③		④		⑤	⑥	⑦	⑧	⑨		⑩		⑪		⑫		⑬

① Type

S	Standard Monocarrier

② Body Size

120	120mm

③ Shape

S	Motor Straight
L	Motor Parallel Left
R	Motor Parallel Right
U	Motor Parallel Under

⑤ Motor Information

T	Step

⑥ Motor Capacity

	Size
Step Motor	60

④ Stroke, In increment of 50mm

Base	Ball Screw	200	400	600	800	1000
PHMS090	Ø15x10					
	Ø15x20					

⑦ Motor Length

S	Small
M	Medium
L	Large
XL	Extra Large

※ Motor length XL can be used only 42mm size.
※ 35mm size can use only M, L motor length.

⑧ Encoder Resolution

A	10,000[ppr]

⑨ Motor Brake

None	Without Brake
B	With Brake

⑪ Sensor

※Standard:3EA

None	No Sensor
E1	PANASONIC(PM-L25)
E2	OMRON(EE-SX674A)

⑩ Ball Screw Lead

Simbol	Size	Lead
N	Ø15	10mm
H	Ø15	20mm

※ If the ball screw speed is raised, the rotary generates a resonance and the circular rotation of the inner ball can cause damage to the inner ball. Therefore, calculate the risk velocity and determine the maximum speed according to the transfer distance.

⑫ Surface Treatment

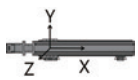
S1	Screw Shaft-Raydent
S2	Screw Shaft+Nut-Raydent

⑬ Drive

None		No Drive
Step Motor	SST	Pulse
	EEC	EtherCAT
	EEN	Ethernet
	ECL	CC-Link

Specifications

■ Allowable Overhang Distance

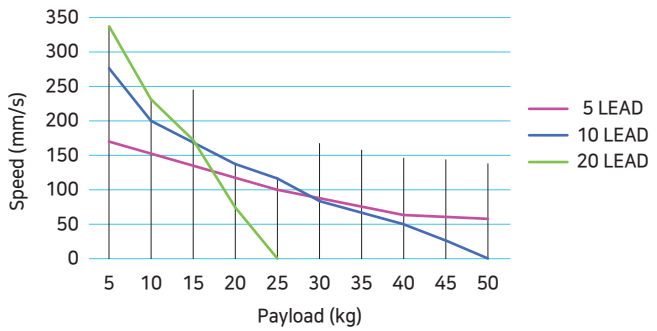
Installation Types Load capacity		Setting Angle	Allowable Overhang Distance(mm) 15kg	20kg	30kg
Horizontal Use		X	240	172	68
		Y	480	350	155
		Z	100	100	100
Wall Mount Use		X	240	170	65
		Y	100	100	100
		Z	465	330	135
Vertical Use		X	100	100	100
		Y	250	185	85
		Z	240	172	72

■ Features

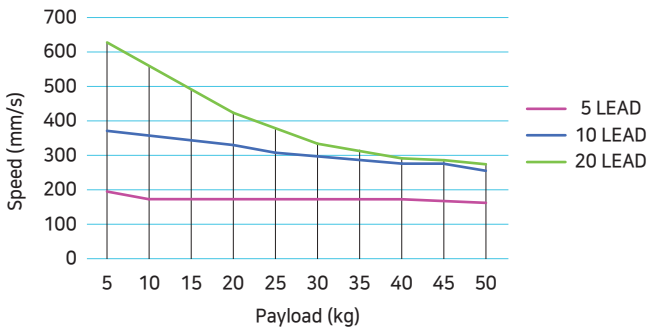
Body Size	120mm
Repeatability(mm)	±0.02
Ball Screw Lead	Ball Screw Lead 10mm, 20mm Standard
Robot Color	Black Anodizing
Mounting Method	Counterbore type Standard
Grease Nipple	Standard
Main Base & Slide	Aluminum Profile, Black Anodizing
Cover	Aluminum Cover

※ Ball Screw Lead 5mm is available as a special order.

■ HiSTEP-60L (Vertical) ※ Based on 300mm stroke

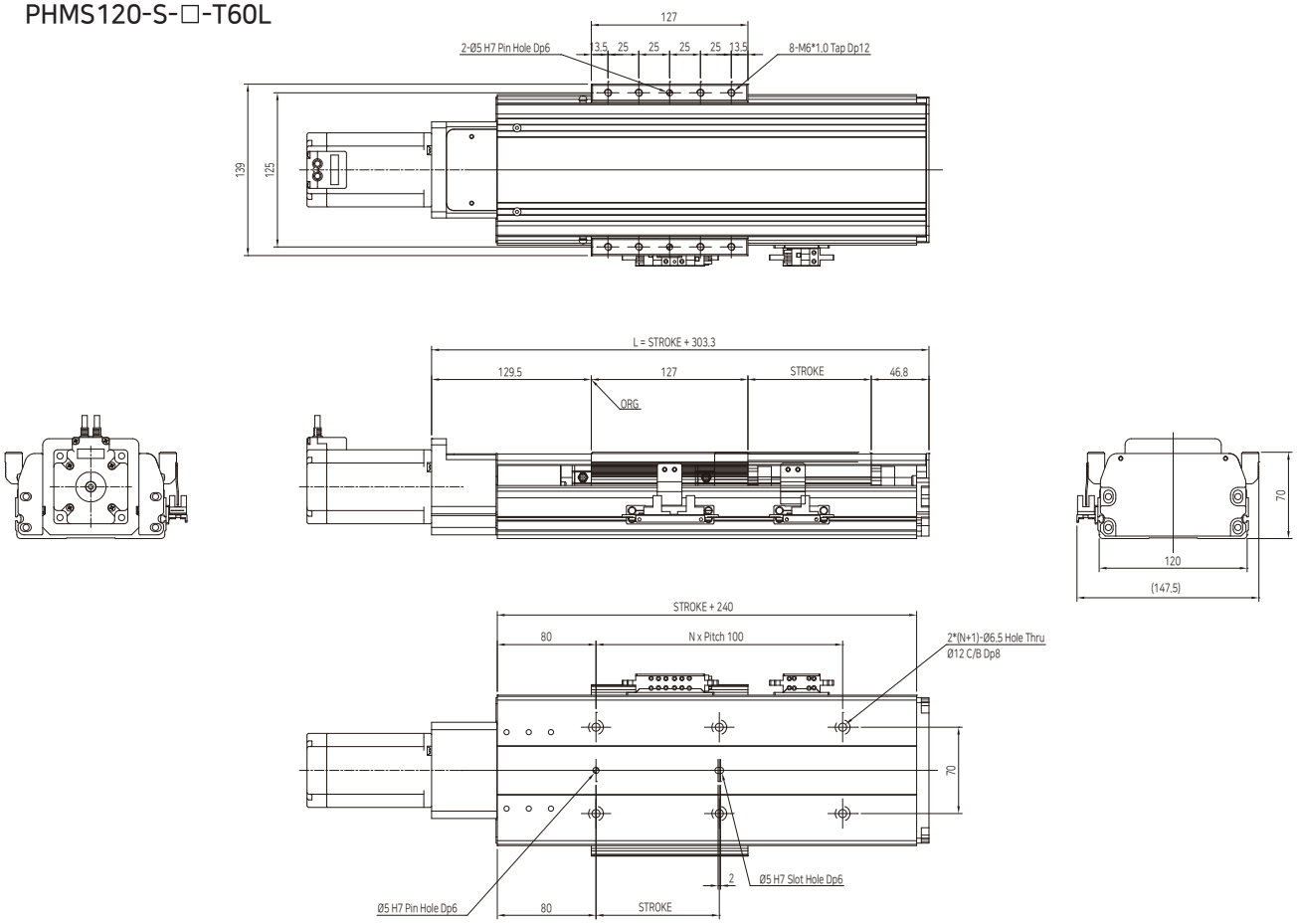


■ HiSTEP-60L (Horizontal) ※ Based on 300mm stroke

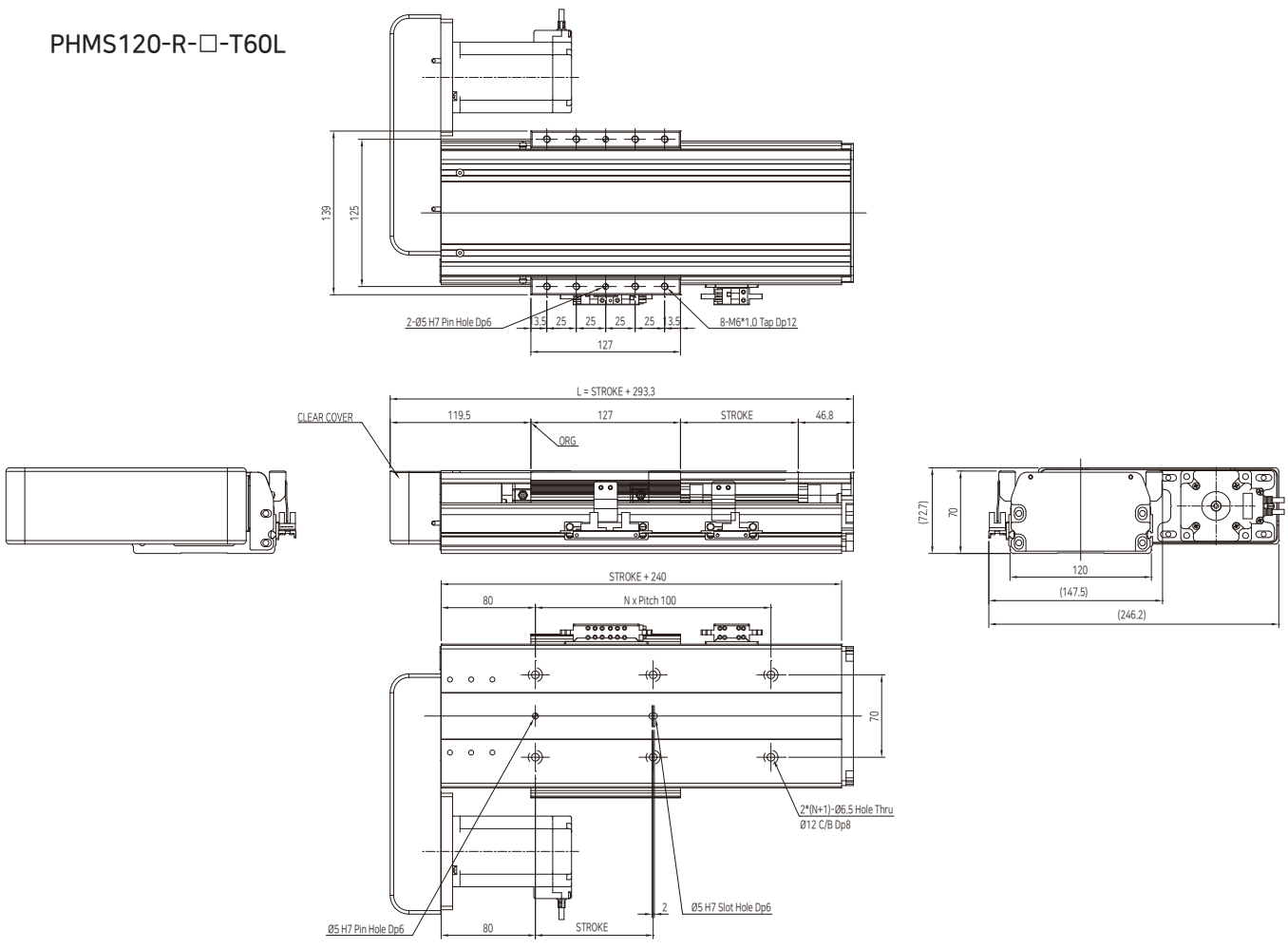


Dimension(mm)

PHMS120-S-□-T60L

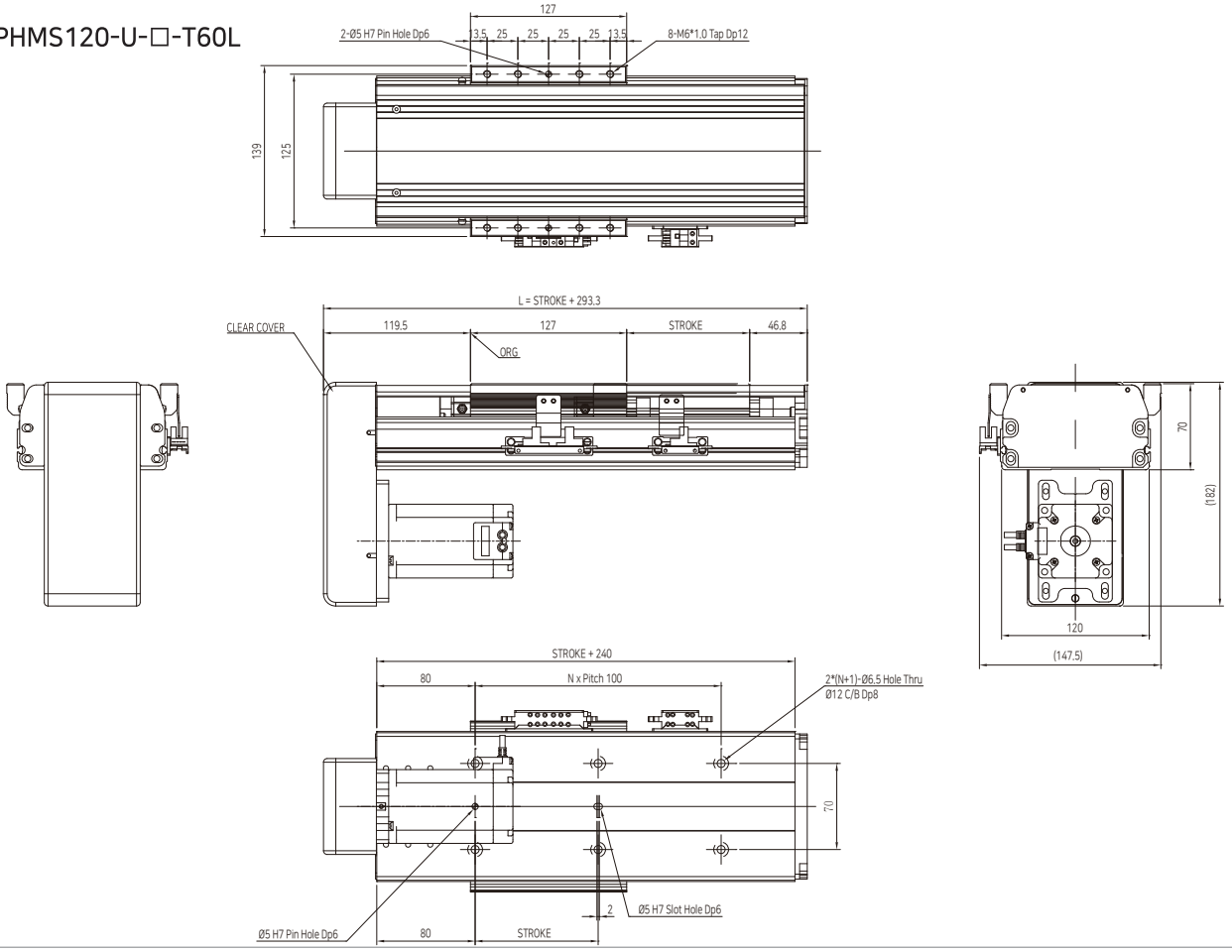


PHMS120-R-□-T60L

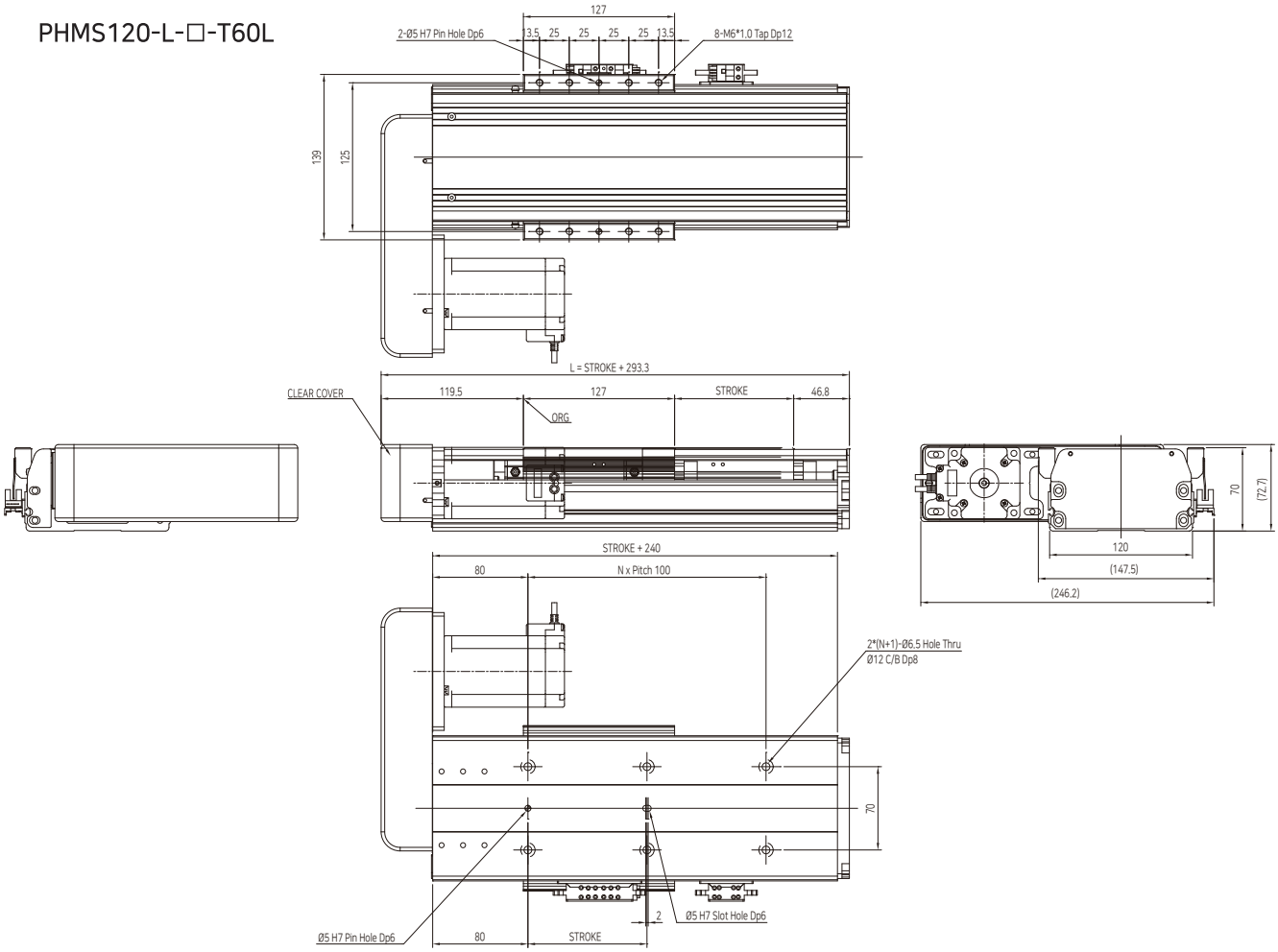


Dimension(mm)

PHMS120-U-□-T60L



PHMS120-L-□-T60L



PISCO®

บริษัท นานดีอินเตอร์เทรด จำกัด
NANDEE INTER-TRADE CO., LTD.
314,316,318,320,322 ซอยจันทน์32 ถนนจันทน์ แขวงทุ่งวัดดอน เขตสาทร กทม. 10120
Tel : 0-2675-8230 (Auto), 0-2675-8240 (Auto) Fax : 0-2212-1448, 0-2213-0360

: @nandeeintertrade
: nandeeintertrade
: www.nandee.co.th
: marketing@nandee.co.th,
sales@nandee.co.th

LINE @