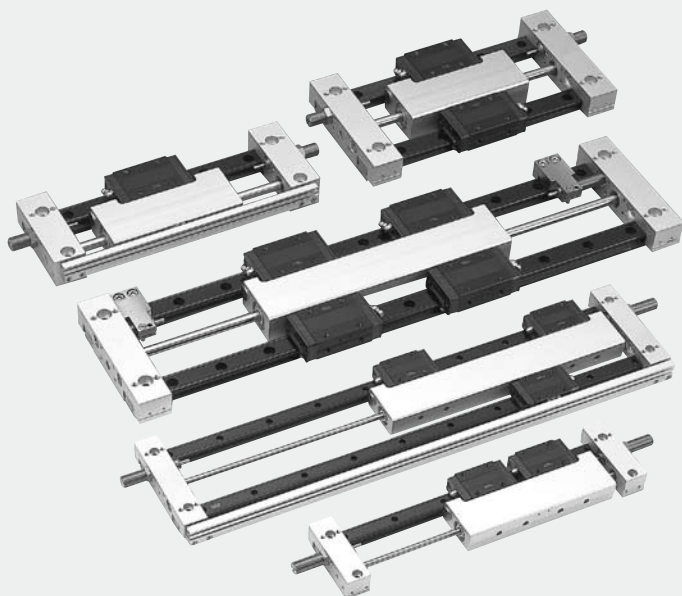


PICO SLIDER II®

PSU Series

**INDEX★**

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PICO SLIDER II

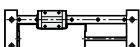
PSU Series

Linear Guide + Air Cylinder

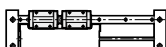
Surprisingly Thin **24mm** (PSU16), **33mm** (PSU25)

Guide Variation

■ Single Type



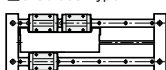
■ Serial Double Type



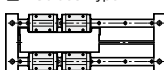
■ Parallel Double Type



■ 3 Guides Type



■ 4 Guides Type



Linear Bearing



THK CO., LTD SR-W

High Accuracy, High Rigidity
Linear Guide is built-in.

Linear Guide Table

High-accuracy, high-rigidity four-row linear guide of circulating infinite linear motion type.

The load can be mounted directly on the linear guide table and the high accuracy and high rigidity of the linear guide can be fully brought out.

The number of guides is selectable between one, two, three and four.

Intermediate Unit-Type Stopper

The stopper can be secured at an arbitrary position over the entire length of the stroke. Fine adjustment is possible.

The metal stopper is integrated with the end of the shock absorber.

Datum Plane

A recess is provided in the end plates on both sizes, which allows positioning by pressing on the datum plane of the rail.

End Lock Mechanism

Option Page 529

Switch

The switch can be mounted either on the cylinder side or the linear guide side.

Linear Guide Rail

The linear guide rail can be used for direct mounting of the body, which allows the high accuracy and high rigidity of the linear guide to be fully brought out.

The number of guide rails is selectable between one and two.

Summary of the Pico Slider II PSU Series

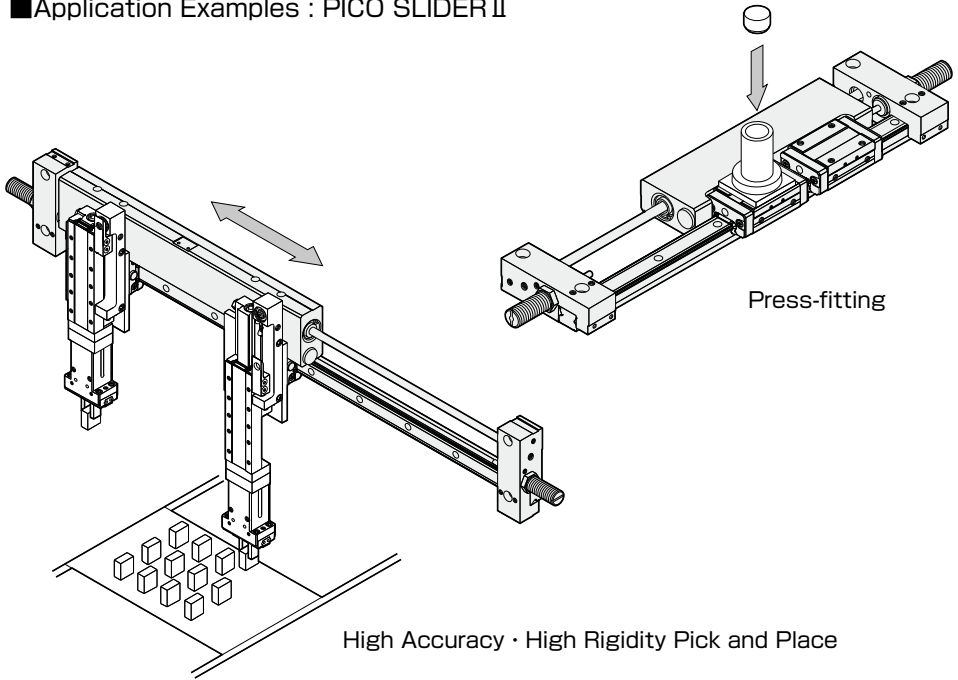
The PSU Series is a sized-up version of the PICO SLIDER PSL Series.

This series of ultrathin, high-accuracy actuators houses all of the air cylinder, shock absorber (with an intermediate stopper unit) and switches within the height of the linear guide.

For mounting of the actuator body and the jig, the linear guide rail and linear guide table can be directly used, which allows the high accuracy, high rigidity and high mounting accuracy of the linear guide to be fully brought out.

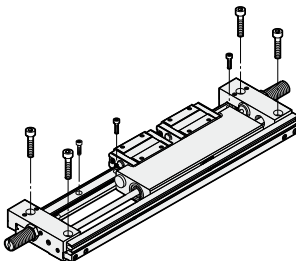
The guide type is selectable between five options: single, parallel double guide, serial double guide, three-guide and four-guide.

Application Examples : PICO SLIDER II



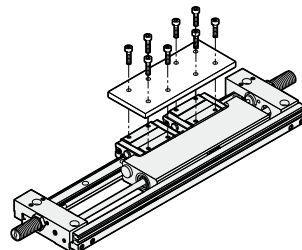
MAIN BODY INSTALLATION

(Bolt as shown in the figure are not supplied with products)



MOUNTING

(Bolt as shown in the figure are not supplied with products)



Model Code Example

PSUS-SD16-100-QD-RD-RB12LA

● Series Name

● Magnet and Switch Rail

No Code	None
S	Magnet and Switch Rail

A magnet and switch rail is required when mounting switches.

● Guide Type

SD	Single Type
WR	Parallel Double Type
WG	Serial Double Type
WA	3 Guides Type
WH	4 Guides Type

● Bore Size

16	φ16
25	φ25

Please check P447 "PSL Pico Slider" for φ8, φ12.

● Cable Length

No Code	1 m
LA	3 m

● Number of Switches

1	1
2	2
3	3

● Switch

No Code	None			
RB1	Straight	DC12~24V	2 Wires Reed Switch	With Indicator Light
RC1	Angle	DC12~24V	2 Wires Reed Switch	Without Indicator Light
RB2	Straight			
RC2	Angle	DC12~24V	2 Wires Solid State Switch	With Indicator Light
RB4	Straight			
RC4	Angle	DC5~24V	3 Wires Solid State Switch	With Indicator Light
RB5	Straight			
RC5	Angle			

Direction of Cable Outlet

RB····Straight Outlet Cable RC····Angle Outlet Cable



For details Page 1066, 1067

● Installation Positions of Magnet and Switch Rail

No Code	On Body Installation
RD	On Drive Side Guidetable

For details Page 483

● Stopper Type

QD	End Plate Type	QW	Intermediate Unit Type

Stroke Adjustment Method Page 487
Specifications, Dimensions Page 499, 500

● Stroke

Guide Typw	Cylinder Bore	Standard Stroke (mm)
SD, WR	φ16	25, 50, 75, 100
	φ25	
WG, WA, WH	φ16	25, 50, 75, 100, 125, 150, 175, 200
	φ25	

Intermediate Stroke

Please adjust with Stopper (Shock Absorber)

SPECIFICATIONS

Bore Size		$\phi 16\text{mm}$	$\phi 25\text{mm}$
Rod Diameter		$\phi 6\text{mm}$	$\phi 10\text{mm}$
Note 1) Maximum Load Mass	SD	4kg	10kg
	WG	8kg	20kg
	WR	6.5kg	16kg
	WA	8kg	20kg
	WH	8kg	20kg
Port Size		M5×0.8	Rc1/8
Guide Mechanism		Precision Linear Ball Bearing	
Type of Operation		Double Acting	
Fluid		Air	
Maximum Operating Pressure		0.7MPa	
Minimum Operating Pressure		0.3MPa	0.2MPa
Pressure		1.05MPa	
Operating Temperature		5~60°C	
Maximum Operating Speed		500mm/s	
Minimum Operating Speed		150mm/s	100mm/s
Cushioning		Shock Absorber(with Metal Stopper)	
Note 2) Stroke Adjust Range	QW	Adjustable at stroke end	
	QD	Adjustable at any position on overall stroke	
Lubrication		Not required	

Note 1: Specifications may vary depending on the operation conditions. Page 496~498

Note 2: For detail Page 487

THE TYPE OF LINEAR GUIDE

Model	Type
PSU16	THK SR15W
PSU25	THK SR25W-Y

Radial space Page 491

THEORETICAL THRUST

Unit: N

Bore Size (mm)	Operating Pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
$\phi 16$	—	52	69	86	104	121
$\phi 25$	82	124	165	206	247	288

1MPa=10.2kgf/cm²
1N=0.102kgf

INSTALLATION POSITIONS OF MAGNET AND SWITCH RAIL


No Code	On Body Installation	RD	On Driving Side Guide Table
	<p>In case of WR,WA,and WH types, magnet is installed on a driven side guide table.</p>		

OPTIONAL PARTS CODES



Name

PARTS CODE Note
PARTS CODE Note
Content



Switch Fixture

BE (PSU) Screw, Nut




Reed Switch(2 Wires, with Indicator Light)
Straight Outlet Cable Angle Outlet Cable

RB1 (PSU) Cable Length:1m	RC1 (PSU) Cable Length:1m
RB1LA (PSU) Cable Length:3m	RC1LA (PSU) Cable Length:3m
	
with fixture	with fixture



Reed Switch(2 Wires, without Indicator Light)
Straight Outlet Cable Angle Outlet Cable

RB2 (PSU) Cable Length:1m	RC2 (PSU) Cable Length:1m
RB2LA (PSU) Cable Length:3m	RC2LA (PSU) Cable Length:3m
	
with fixture	with fixture


Solid State Switch(2 Wires, with Indicator Light)
Straight Outlet Cable Angle Outlet Cable

RB4 (PSU) Cable Length: 1m	RC4 (PSU) Cable Length: 1m
RB4LA (PSU) Cable Length:3m	RC4LA (PSU) Cable Length:3m
	
with fixture	with fixture

Solid State Switch(3 Wires, with Indicator Light)
Straight Outlet Cable Angle Outlet Cable

RB5 (PSU) Cable Length: 1m	RC5 (PSU) Cable Length: 1m
RB5LA (PSU) Cable Length:3m	RC5LA (PSU) Cable Length:3m
	
with fixture	with fixture


Repair Parts Kit

HP (PSU16) For PSU16
HP (PSU25) For PSU25
For details  Page 486


Intermediate Stopper Unit

QW (PSU16) For PSU16-QW
QW (PSU25) For PSU25-QW


Magnet

RK (PSU)
Before mounting, apply anaerobic adhesive to the screws.

with mounting screws

Switch Rail

RJ (PSU- [A] [B]-[C] [D])
Substitute: [A]: Guide type [B]: Cylinder inside diameter [C]: stroke [D]: Stopper type. Example: For RJ (PSU-SD16-100QW) is a rail for PSUS-SD16-100-QW.

with fixing bolts

Shock Absorber

ABK10 For PSU16-QW
M10x1

with lock nut

Shock Absorber

ABK12 For PSU16-QD For PSU25-QW
M12x1

with lock nut

Shock Absorber

ABK14 For PSU25-QD
M14x1

with lock nut

Lock Nut for Shock Absorber

Model	Parts Code
ABK10	NTS(M10)
ABK12	NTS(M12)
ABK14	NTS(M14)

| | |

PRODUCT MASS

●PSU-(GUIDE TYPE)16-QD(QW)

Unit: g

Guide Type	Stroke (mm)								QW Additional Mass
	25	50	75	100	125	150	175	200	
SD	920	960	1090	1220	—	—	—	—	160
WR	1400	1470	1660	1850	—	—	—	—	210
WG	1260	1300	1340	1380	1500	1620	1740	1860	160
WA	1800	1870	1940	2010	2190	2370	2550	2730	210
WH	2000	2070	2140	2210	2390	2570	2750	2930	210

●PSU-(GUIDE TYPE)25-QD(QW)

Unit: g

Guide Type	Stroke (mm)								QW Additional Mass
	25	50	75	100	125	150	175	200	
SD	2020	2110	2370	2630	—	—	—	—	410
WR	3180	3340	3740	4140	—	—	—	—	550
WG	3000	3090	3180	3270	3360	3450	3690	3930	410
WA	4430	4580	4730	4880	5030	5180	5550	5920	550
WH	4830	4980	5130	5280	5430	5580	5950	6320	550

●Magnet, Switch Rail

Unit: g

Model	Magnet	Switch Rail	QW Additional Mass
PSU16	2	$(176+2 \times \text{Stroke}) \times 0.3 + 4$	12
PSU25		$(251+2 \times \text{Stroke}) \times 0.3 + 4$	15

●Switch

Unit: g

Switch Type	Mass
RB1, RB2, RB4, RB5	15
RC1, RC2, RC4, RC5	
RB1LA, RB2LA, RB4LA, RB5LA	35
RC1LA, RC2LA, RC4LA, RC5LA	

METHOD TO CALCULATE THE MASS

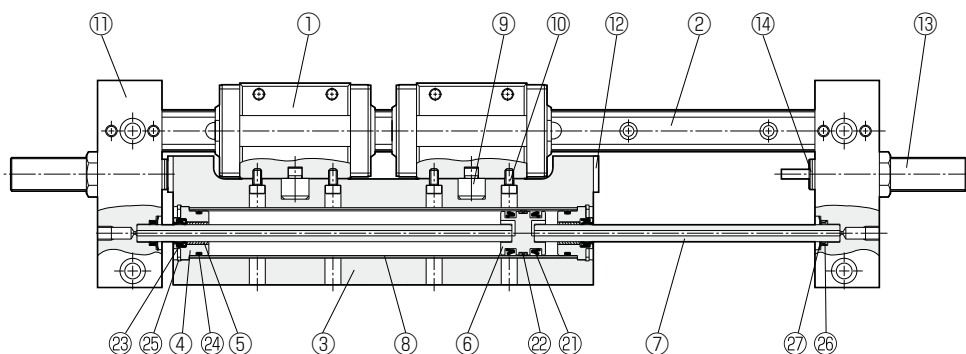
Ex. PSU-WA16-100-QW-RD-RB42LA

Basic Mass..... 2010g
 Additional Mass(QW)..... 210g
 Magnet, Switch Rail · 2+116.8+12=130.8g
 Switch..... 35×2=70g

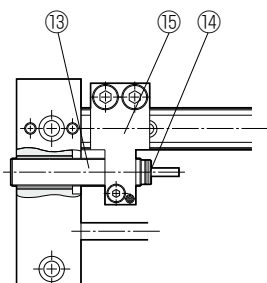
2010+210+130.8+70=2420.8g

STRUCTURE AND PRINCIPAL COMPONENTS

STOPPER TYPE: QD (END PLATE TYPE)



STOPPER TYPE: QW (INTERMEDIATE UNIT TYPE)



PRINCIPAL COMPONENTS

No.	Name	Material	Remarks	No.	Name	Material	Remarks
1	Guide Table	Cr-Mo Steel	Reident	9	Connecting Pin	Stainless Steel	
2	Guide Rail	Carbon Steel	Reident	10	Bolt	Stainless Steel	
3	Body	Aluminum Alloy	White Alumaite	11	Plate	Aluminum Alloy	White Alumaite
4	Rod Cover	Aluminum Alloy	White Alumaite	12	Stopper Catcher	Carbon Steel (Heat Processed)	Electroless Nickel Plating
5	Bush	Steel · PTFE		13	Shock Absorber	Carbon Steel	Electroless Nickel Plating
6	Piston	Aluminum Alloy	White Alumaite	14	Metal Stopper	Carbon Steel	Heat Treatment (Nitriding)
7	Rod	Stainless Steel	Hard Chrome Plating	15	Stopper Block	Steel	Electroless Nickel Plating
8	Tube	Stainless Steel					

Note: End Face of Guide Rail is not Reident Processed.

REPAIR PARTS

No.	Name	Material	Qty	Remarks	No.	Name	Material	Qty	Remarks
21	Piston Seal	NBR	2(1)	Note	25	Circlip	Steel	2	Nickel Plating
22	Wear Ring	Synthetic Resin	1		26	Packing	NBR	2	
23	Rod Seal	NBR	2		27	Toothed Washer	Steel	2	
24	O-ring	NBR	2						

Note: One Piston Seal for PSU25.

STROKE ADJUSTMENT

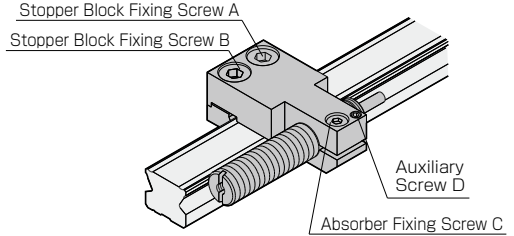
⚠ Caution

Adjust the stroke of the PSU as described below .

■ QW TYPE

① Approximate Stroke Adjustment

1. The stroke can be adjusted at any point of the overall stroke.
2. Loosen the stopper block fixing screws A and B.
3. Adjust the stopper block to an approximate position.
4. Tighten the stopper block fixing screws A and B securely.
5. By retightening the screws after several times of trial runs, the stopper block is more positively fixed.

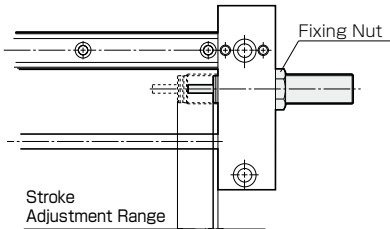


② Fine Stroke Adjustment

1. Loosen the absorber fixing screw C.
2. Adjust the stroke finely by turning the shock absorber with a blade screw driver.
3. Tighten the absorber fixing screw C securely.
4. If the absorber is hard to be turned after the absorber fixing screw C is loosened, tighten the auxiliary screw D slightly then adjusting becomes easier.
5. At this time, be sure to loosen the auxiliary screw D again before tightening the absorber fixing screw C.

Model	Screw	Bolt for Use	Fixing Torque	Fine Stroke Adjustment Range
PSU16	A, B	M5×0.8	7N·m	32mm on one side
	C	M3×0.5	1.5N·m	
PSU25	A, B	M6×1	11N·m	34mm on one side
	C	M4×0.7	3.4N·m	

■ QD TYPE



PSU16: -27mm +2mm
PSU25: -19mm +2mm

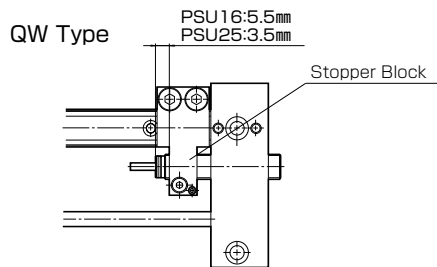
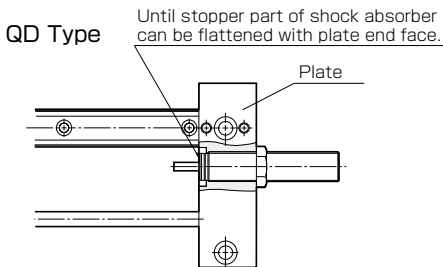
1. Loosen the fixing nut.
2. Adjust the stroke by turning the shock absorber.
3. Tighten the fixing nut while supporting the shock absorber.

Model	Fixing Nut	Fixing Torque	Stroke Adjustment Range
PSU16	M12×1	7.8N·m	+2mm on one side -27mm on one side
PSU25	M14×1	9.8N·m	+2mm on one side -19mm on one side

Note: Maximum value of protrusion amount of Shock absorber from plate end face is in case it is meeting stroke is adjusted to plus direction.

⚠ Warning

Make sure that the stopper of the shock absorber protrudes from the end of the plate or the stopper block at least by the dimension shown in the figures. Otherwise, the rod cover of the body may contact during operation, causing a failure.



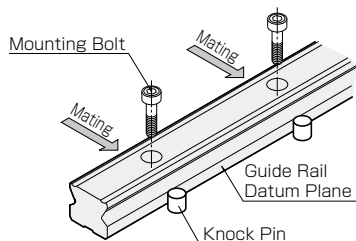
MAIN BODY INSTALLATION

⚠ Caution

Mount the main body of the PSU Pico Slider II as described in the procedures below. Incorrect mounting may affect the operation, precision and life of the PSU Pico Slider II.

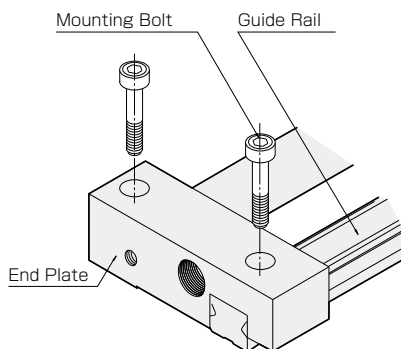
① Fixing the Guide Rail

Place mating surface or knock pin, etc. to a frame, to accept a guide rail datum plane.
Tighten the mounting bolts slightly.
Bring the guide rail datum plane into positive contact with the mating surface or knock pin and tighten the mounting bolts securely.
Refer to page 491 for the guide rail datum plane.



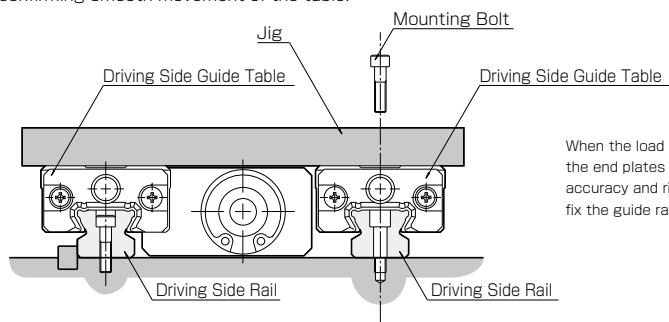
② Fixing the End Plate

Tighten the mounting bolt slightly.
Tighten the mounting bolt on the guide rail side securely.
Tighten another mounting bolt securely.



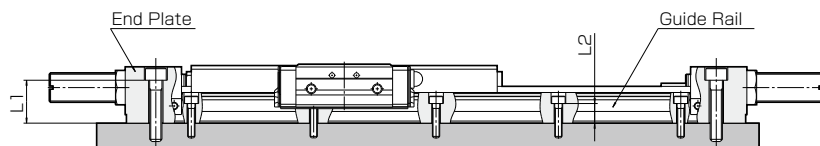
③ Fix the Driven Side Rail (WR, WA, WH)

Tighten the mounting bolt slightly.
Interconnect the driving side guide table and driven side guide table with a work or jig to be used.
Tighten the mounting bolts in succession from the rail end, confirming smooth movement of the table.



When the load is light, it may be enough to fix the end plates only. When the load is high or accuracy and rigidity are required, be sure to fix the guide rail also.

■ Main Body Mounting Screw Dimensions



End Plate Mounting Bolt

Model	Bolt for Use	Fixing Torque N·m	Through Hole Length L1 (mm)
PSU16	M5	5.1	17.5
PSU25	M8	22	23.5

End Plate Mounting Bolt

Model	Bolt for Use	Fixing Torque N·m	Through Hole Length L2 (mm)
PSU16	M3	1.1	8
PSU25	M6	8.6	9

WORK MOUNTING

⚠ Caution

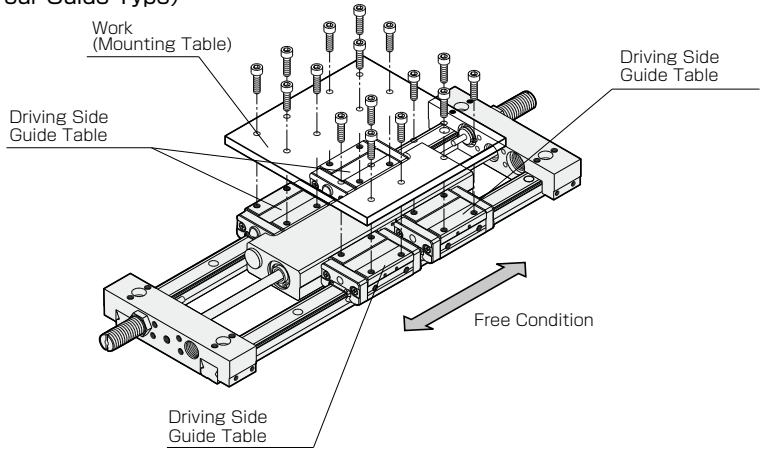
Connect and fix multiple guide tables with using work or work mounting plate in case of WR Type (Parallel Double Guide), WA (Three Guide Type) and WH (Four Guide Type).

The driving guide table and driven guide tables are not connected and fixed. The driven guide table is free.

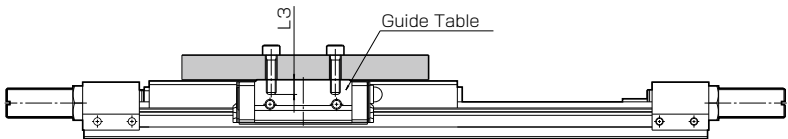
Design the mounting table with full consideration of the strength, hardness and flatness.

Be sure to use all mounting screws on the guide tables (four screws for the driving guide table and four screws for the driven guide table) to mount the mounting table.

Example: WH(Four Guide Type)

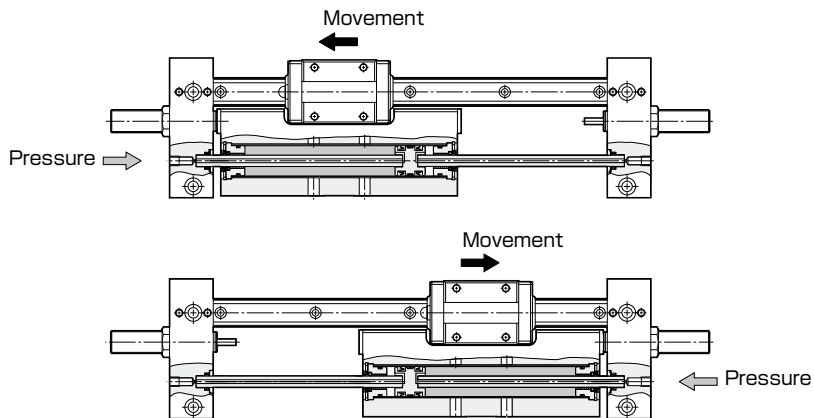


■ Work Mounting Screw Dimensions



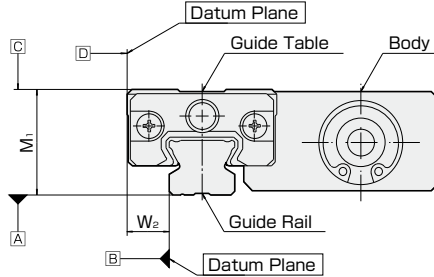
Model	Bolt for Use	Fixing Torque N·m	Screw Depth L3(mm)
PSU16	M4×0.7	2.5	7
PSU25	M6×1	8.6	9

MOVEMENT DIRECTION OF THE TABLE BY PRESSURE PORT —

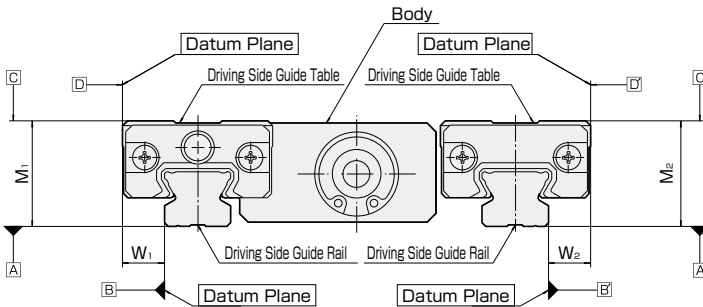


ACCURACY AND DATUM PLANE

■SD, WG TYPE



■WR, WA, WH TYPE



ACCURACY

Unit: mm

Model	PSU16	PSU25
Running parallelism of C(C') with respect to A(A)	0.023	0.030
Running parallelism of D(D') with respect to B(B)	0.023	0.030
Tolerance of height M1 and M2	±0.03	±0.04
Difference of pair height M1 and M2	0.02	0.02
Tolerance of width W1 and W2	±0.1	±0.1
Difference of pair width W1 and W2	0.02	0.03

Note: Screw hole of guide table at datum plane side is for mounting purpose of end lock plate. The surface of screw hole has difference in level against datum plane. Please contact to us separately in case of using screw hole.

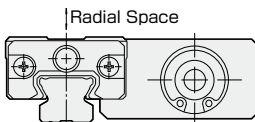
DIFFERENCE OF PAIR HEIGHT M1 AND M2

Difference between maximum and minimum dimensions of Height M 1 (M2) of multiple guide tables on a same guide rail

DIFFERENCE OF PAIR WIDTH W 1 AND W2

Difference between maximum and minimum dimensions of Width W 1 (W2) between multiple guide tables and rails on a same guide rail

■Radial Space and Pre-load



Radial Space is numerical movement value of table center part when guide table is activated to axis by constant power.

Pre-load is with-stand load of the purpose of to lose space and to enhance rigidity.


Unit: mm

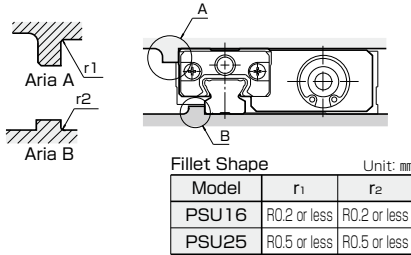
Model	PSU16	PSU25
Radial Space	+0.002~-0.004	+0.003~-0.006

PRECAUTIONS FOR DESIGN AND USE

⚠ Caution

Accuracy of mounting Surface

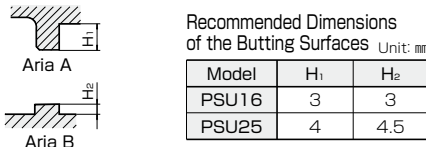
- ① The upper surface of the guide table and the bottom surface of the guide rail of Pico Slider are finished by precision grinding. Stable and highly accurate linear motion can be obtained by making the mounting surfaces of the mating parts such as machines, devices and jigs flat without staggers and projections, machining them with high precision and mounting them correctly. Poor accuracy of the mounting surfaces or incorrect mounting will cause plays, higher rolling resistance and an adverse effect on product life. Reference surfaces for mounting of the guide table and the table  P. 491
- ② Provision of relief area is recommended to the filletshape of the mating surfaces of the guide table and the guide rail. An alternative is to provide an R as shown in the figures below. If the fillet shape is larger than the chamfered dimension of the body or the guide table, the mating part may not be brought to contact with the butting surface in the correct manner.



- ③ Make sure that no squareness error exists on the mounting surfaces and the butting surfaces of the guide table and the guide rail. If the squareness is poor, the mounting surface may not be brought to contact with the butting surface in the correct manner.



- ④ For designing the butting surface, pay attention to the height and the thickness of the butting surface. If the thickness is not large enough, an adverse effect will be given to accuracy because of insufficient rigidity when subjected to lateral load or insufficient rigidity of the butting surface when subjected to positioning by means of lateral bolts.



Rigidity of the Mounting Area (Fixing Area)

Inappropriate fixing method of the product or insufficient rigidity of the mounting area may result in the failure of fully demonstrating high rigidity / accuracy of Pico Slider. When designing devices, pay due attention to rigidity of the areas such as mounting bases.

Connection with Load

Sufficient aligning is indispensable for connection with a load which is provided with external supporting mechanism.

Though this machine can be used by directly applying a load within the allowable range on it, insufficiently aligned connection with a load which is provided with external supporting mechanism will give an adverse effect on operation, product life, etc.

The longer the stroke becomes, the larger the dislocation of the shaft center becomes. Therefore, use this machine by giving due consideration to the connecting method which will tolerate this misalignment.

Center of Gravity of Load

Bring the center of gravity of the load as close to the center of the table as possible.

If the center of gravity of the load is located away from the center of the table, a large moment will be generated, giving an adverse effect on product life and rigidity. Use this machine within the allowable load and moment.

Lubrication of the Linear Guide

Though inside of the guide table is filled with lubricant beforehand, the performance will deteriorate depending on the operating time, working conditions, environment, etc. Therefore, lubricant must be supplied periodically.

The use of the machine without proper refilling of lubricant may result in increased wear of the rolling areas or shorter product life.

Though the refilling interval of grease varies depending on the working conditions and environment, an interval of approximately 100km of running or one month is recommended.

After wiping off old grease, supply lithium soap-based grease through the grease nipples on the guide table. Supply of different grease may cause deterioration of lubrication performance or chemical change, leading to malfunction or failure.

Lubrication by application or dripping of turbine oil is also allowed.

Do not use spindle oil or machine oil because they will give an adverse effect on packings.

Feel of Rolling of the Linear Guide

When the machine is moved manually, the rolling of the ball inside the linear guide may give you somewhat a feel of discontinuous operation, or rolling resistance may differ from one machine to another.

This is caused by the pre-load of the linear guide, and will give no influence on the performance.

Magnetizing of the Body and the Guide Table

Since the body and the guide table are made of iron, if any magnet or magnetic product is brought to contact, they will be magnetized. Even after the magnet or the magnetic product is removed, the body and the guide table will remain magnetized.

If a switch is being used, this magnetism may cause malfunction of the switch. So, pay due attention to this phenomenon.

THEORETICAL DISPLACEMENT OF TABLE BY MOMENT

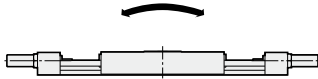
When external force is applied to the guide table or and the gravity acting on the loaded work, slight angular displacement occurs.

Theoretical values of the displacement angle of the guide table by moment in each direction are shown in the graphs.

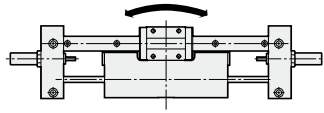
Mr(rolling)



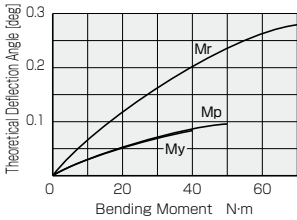
Mp(pitching)



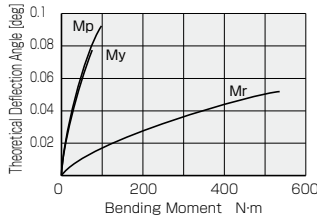
My(yawning)



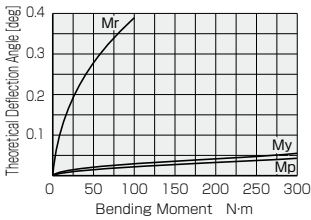
PSU-SD16-25~100



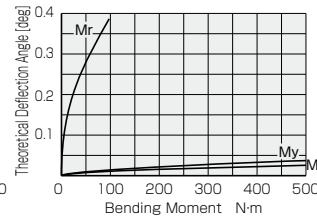
PSU-WR16-25~100



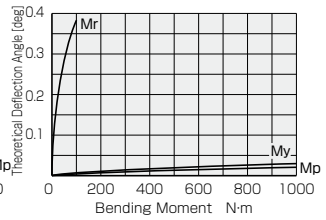
PSU-WG16-25~100



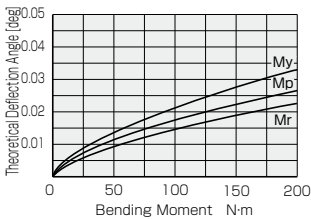
PSU-WG16-150



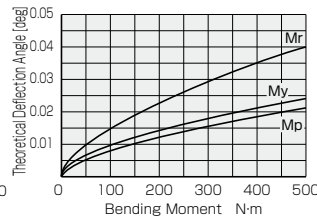
PSU-WG16-200



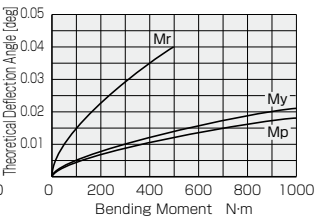
PSU-WA16-25~100



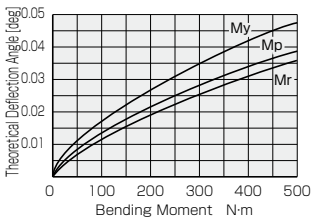
PSU-WA16-150



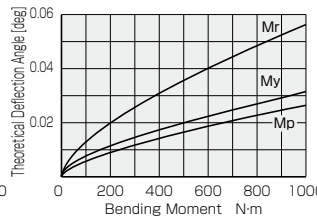
PSU-WA16-200



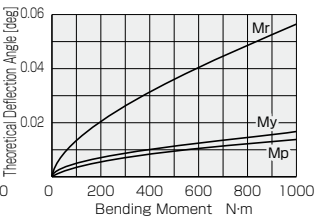
PSU-WH16-25~100



PSU-WH16-150



PSU-WH16-200



ALLOWABLE LOAD MASS AND ALLOWABLE LOAD AND ALLOWABLE MOMENT

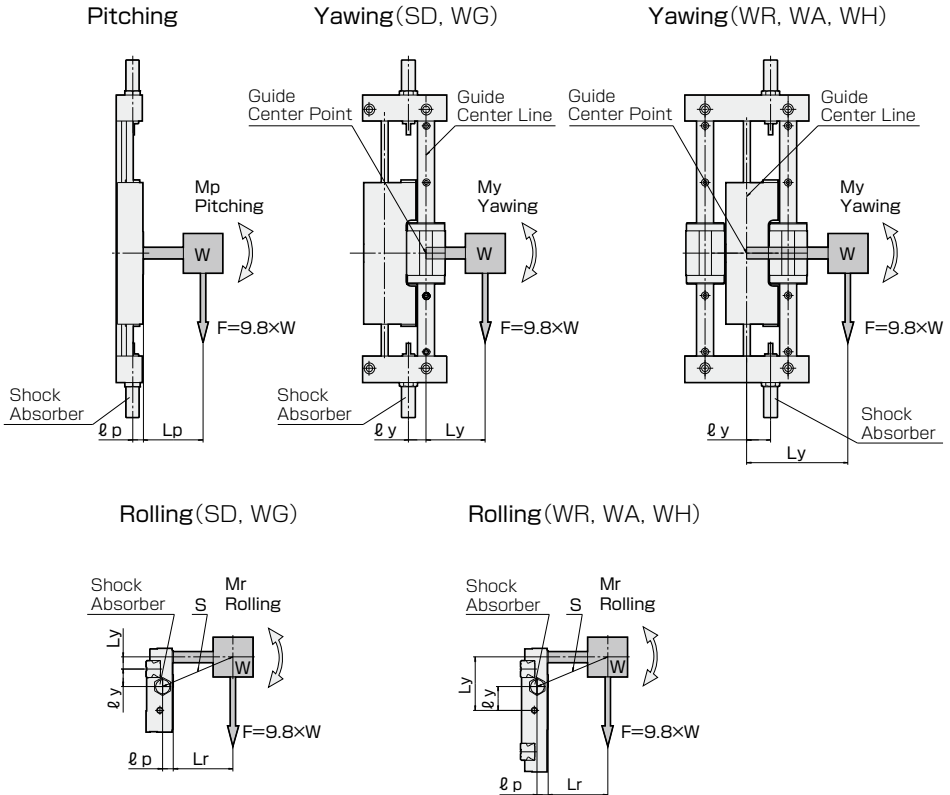
⚠ Caution

Allowable limit of load or force acting on the actuator is different according to the types of the load. Application under larger load than these allowable limits, gives bad influence to operation, accuracy and life of the actuator and in worst case the actuator may break down.

Types of Load	Situation of Actuator	Situation of Load	Item to be confirmed
Mounted Load(W)	Operating	Continuously Acting	Basic Static Rated Load, Static Rated Moment, Allowable Inertia Mass, Allowable Absorber Collision Energy
External Force	Stopping	Temporarily Acting	Basic Static-load Rating, Allowable Static Moment

Directions of the Moment and the Positions of the Guide Center Line and the Shock Absorber

The moment directions are classified into three types in accordance with the mounting condition of a load to the actuator.



POSITION OF THE SHOCK ABSORBER Unit: m

Model	Guide Type	Shock Absorber Position	
		l_p	l_y
PSU16	SD, WG	0.0095	0.0155
	WR, WA, WH		0.0210
PSU25	SD, WG	0.0110	0.0205
	WR, WA, WH		0.0275

- W..... Mounted load mass(kg)
- F..... Gravity applied on load(N)
- l_p, l_y, l_r Distance between guide center line and center of gravity of mounted load(m)
- p, y Distance between the center line of the guide and shock absorber(m)
- S..... Distance between center line of a loaded work and shock absorber(m)

■ Allowable mass and Allowable moment in case of a loaded work, Allowable inertia mass


When the actuator is operated with a load mounted, confirm that the following four values are respectively within the allowable range.

① Allowable Load Mass

Unit: kg

Model	Guide Type				
	Single Type(SD)	Serial Double(WG)	Parallel Double(WR)	3 Guides Type(WA)	4 Guides Type(WH)
PSU16	4	8	6.5	8	8
PSU25	10	20	16	20	20

⚠ Caution

When this machine is used in the vertical direction, a thrust strong enough for the mass of the load may not be obtained depending on the air pressure even when used within the Max. loading mass, causing failure to operate at a required speed or to push the shock absorber to the stroke end.
Theoretical thrust  Page 483

② Allowable Loaded Work Moment

The moment in each direction generated by the gravity acting on a loaded work is calculated by the formulas below. These calculated values shall not exceed the allowable loaded work moment.

$$\begin{aligned} \text{(Mounted load moment)} &= (\text{Gravity applied on load: } F) \times (\text{Distance between guide center line and center of gravity of mounted load: } L) \\ &= 9.8 \times (\text{Mounted load mass: } W) \times (\text{Distance between guide center line and center of gravity of mounted load: } L) \end{aligned}$$

$$\text{(Gravity applied on load: } F) = 9.8 \times (\text{Mounted load mass: } W)$$

$$\text{Pitching} \cdots M_p (\text{N}\cdot\text{m}) = 9.8 \times W (\text{kg}) \times L_p (\text{m})$$

$$\text{Yawning} \cdots M_y (\text{N}\cdot\text{m}) = 9.8 \times W (\text{kg}) \times L_y (\text{m})$$

$$\text{Rolling} \cdots M_r (\text{N}\cdot\text{m}) = 9.8 \times W (\text{kg}) \times L_r (\text{m})$$

Allowable Loaded Work Moment

Model	Guide Type	Stroke(mm)	Allowable Loaded Work Moment (N·m)								
			Mp			My			Mr		
PSU16	Single Type(SD)	25~100		1.8			1.6		2.4		
	Serial Double(WG)	25~100	125	150	16	29	41	14	25	35	4.0
		175	200	50	59	43	51				
	Parallel Double(WR)	25~100		2.9			2.6		21		
	3 Guides Type(WA)	25~100	125	150	16	29	41	14	25	35	21
		175	200	50	59	43	51				
4 Guides Type(WH)	25~100	125	150	25	46	65	23	41	59	32	
	175	200	80	94	72	85					
PSU25	Single Type(SD)	25~100		5.6			5.0		8.1		
	Serial Double(WG)	25~150	175	200	58	84	112	49	72	93	13
		25~100		9.0			8.1		59		
	3 Guides Type(WA)	25~150	175	200	58	84	112	49	72	93	59
	4 Guides Type(WH)	25~150	175	200	96	140	187	87	126	169	91

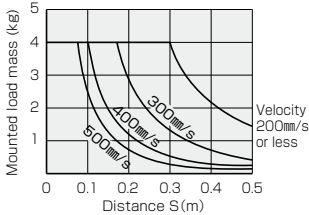
1N·m=0.102kgf·m

③ Allowable Inertia Mass

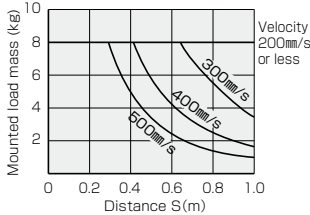
When the shock absorber runs against the stopper support of the body and the actuator stops, a force is generated due to the inertia of the loaded work. The value of the force varies depending on the shape of loaded work, mounting method, mounting position, working pressure, and various other conditions. It is, therefore, very difficult to obtain uniform allowable values.

Here, the relation among "collision speed contact with a shock absorber", "mass of loaded work" and "distance between the center of gravity of loaded work and shock absorber position" are theoretically calculated as shown in the graph below. Refer to this as a criterion for judging the allowable values of a loaded work. The distance S is the distance between the center of gravity of the loaded work and the shock absorber. Refer to the figure under the title of "Direction of moment and center line position of guide and shock absorber" on previous page.

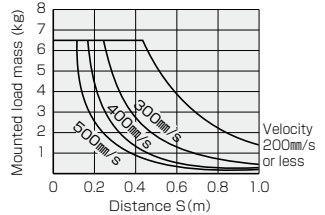
PSU-SD16



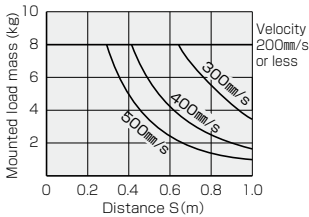
PSU-WG16



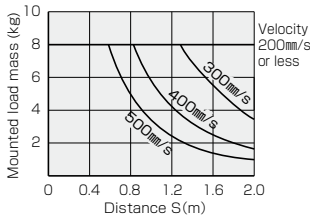
PSU-WR16



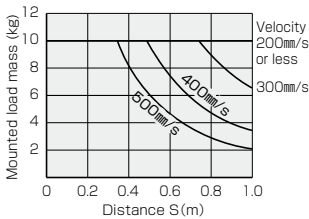
PSU-WA16



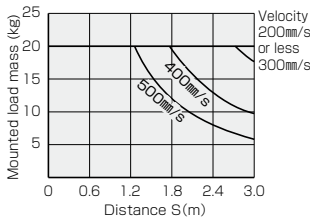
PSU-WH16



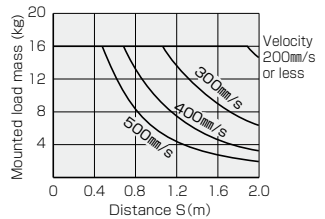
PSU-SD25



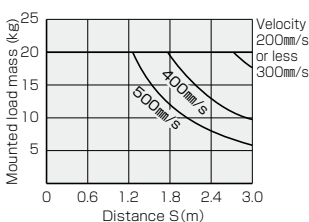
PSU-WG25



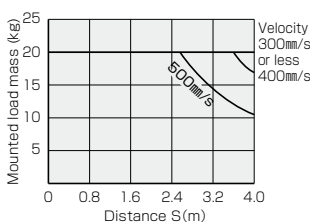
PSU-WR25



PSU-WA25



PSU-WH25



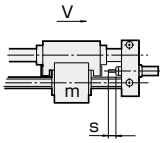
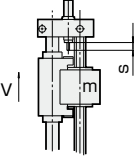
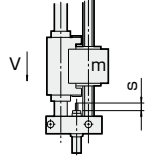
NOTE: When stopping the actuator using an external metal stopper a very large shock force is generated. Determine allowable load mass to be a value of about 1/5~1/10 of the loaded mass shown in the above graphs.

④ Shock Absorber Collision Energy

The energy that the shock absorber of the stopper must absorb consists of three elements: kinetic energy, energy of cylinder thrust and energy due to gravity.

The energy upon collision is the total of all these.

See the shock absorber specifications and energy absorption graph below to use the product within the shock absorber specifications.

	Horizontal Use	Vertical Upward Use	Vertical Downward Use
Usage Condition Example			
Collision Energy E	$E=1/2(mV^2)+Fs$	$E=1/2(mV^2)+Fs-mgs$	$E=1/2(mV^2)+Fs+mgs$

E : Collision Energy(J)
 m : Colliding Mass(kg)
 V : Collision Velocity(m/s)
 F : Cylinder Thrust(N)
 s : Shock Absorber Stroke(m)
 g : Gravity Acceleration(9.8m/s²)

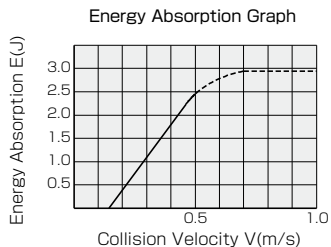
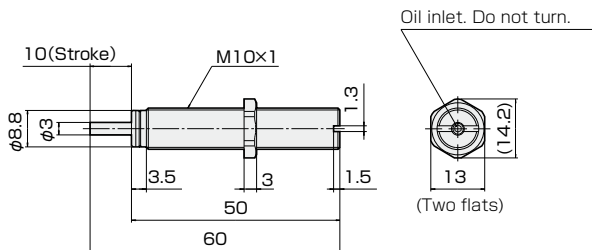
SHOCK ABSORBER SPECIFICATIONS

Model	ABK10	ABK12	ABK14
* Max Energy Absorption	3J	6.86J	9.8J
Stroke	10mm	10mm	12mm
Energy Absorption Per Minute	60.8J/min	98J/min	176J/min
Max. Collision Velocity	1 m/s		
Usage Frequency	60c.p.m or less		
Operating Temperature Range	-5~70°C		
Piston Rod Return Force	4.9N	9.8N	8.9N
Applicable Model	PSU16-QW	PSU16-QD PSU25-QW	PSU25-QD

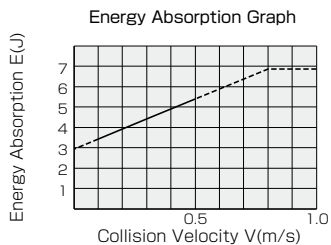
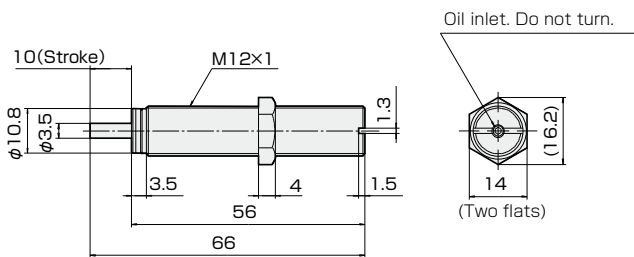
Refer to the absorption energy graph on page 500 for details.

DIMENSION OF SHOCK ABSORBER

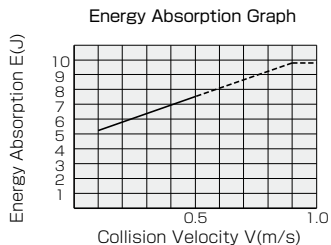
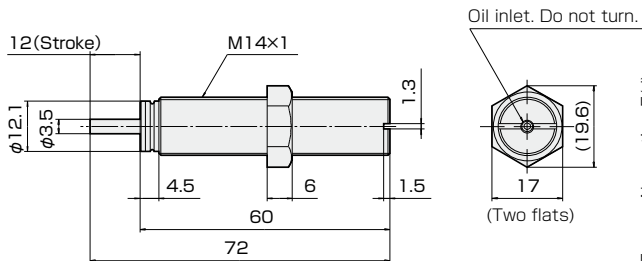
MODEL: ABK10(FOR PSU16-QW)



MODEL: ABK12(FOR PSU16-QD, PSU25-QW)



MODEL: ABK14(FOR PSU25-QD)



■ Allowable Load and Allowable Moment for External Force (Motionless)

In the case that an external force is applied temporarily when the actuator stops at the stroke end or so, confirm that the following two values are within allowable range.

- ① External Force Value (Basic Static Load Rating)
- ② External Moment (Static Moment Rating)

Note: The arm length of a moment shall be length from the guide center and the point where an external force is applied.

If a guide table receives an excessive load or a large impact, permanent deformation is locally generated between the ball and the ball rolling surface. This deformation will prevent the actuator from smooth operation when it develops more than the allowable limit. The basic static load rating C_0 , the static moment rating M_{p0} , M_{y0} and M_{r0} mean such a static load and static moment of constant direction and the total of the permanent deformation values at the ball rolling surface is 0.0001 times of the ball diameter on the contact surface receiving the maximum stress.

The static moment applied to the table is limited under C_0 , M_{p0} , M_{y0} and M_{r0} with considering about static safety factor, f_s .

$C_0 \geq f_s \cdot P$ C_0 : basic static load rating N $M_{p0} \geq f_s \cdot M_{p1}$ M_{p0} , M_{y0} , M_{r0} : Static moment rating N·m
 P : static load N $M_{y0} \geq f_s \cdot M_{y1}$ M_{p1} , M_{y1} , M_{r1} : Static moment N·m
 f_s : static safety factor $M_{r0} \geq f_s \cdot M_{r1}$ f_s : Static safety factor

STATIC SAFETY FACTOR f_s

Load Conditions	Lower Limit of f_s
Impact with Light Load	1.0~1.3
Impact with Heavy Load	2.0~3.0

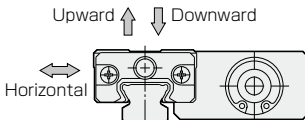
BASIC STATIC LOAD RATING, STATIC MOMENT RATING

Model	Guide Type	Stroke(mm)			Basic Static Load Rating N	Static Moment Rating N·m						
						M_{p0}			M_{y0}			M_{r0}
PSU16	Single Type(SD)	25~100			19300	50			40			70
	Serial Double Type(WG)	25~100	125	150	31200	418	766	1087	360	659	935	110
		175		200		1332	1573	1145	1353			
	Parallel Double Type(WR)	25~100			31200	100			80			540
	3 Guides Type(WA)	25~100	125	150	41600	418	766	1087	360	659	935	540
		175		200		1332	1573	1145	1353			
4 Guides Type(WH)	25~100	125	150	50900	836	1532	2174	720	1318	1870	1080	
	175		200		2664	3146	2290	2706				
PSU25	Single Type(SD)	25~100			39500	150			130			210
	Serial Double Type(WG)	25~150	175	200	63900	1532	2228	2983	1318	1916	2488	340
		25~100				63900	300			260		
	Parallel Double Type(WR)	25~150	175	200	85300	1532	2228	2983	1318	1916	2488	1470
	4 Guides Type(WH)	25~150	175	200	104000	3064	4456	5966	2636	3832	4976	2940

1N·m=0.102kgf·m
1N=0.102kgf

BASIC RATED STATIC LOAD, RATED STATIC MOMENT

Basic rated static load C_0 listed in the table above indicates a value of downward load. Upward and horizontal load values can be obtained by the table below.



Load direction	Rated Load	Basic Rated Static Load
Downward		C_0
Upward		$0.5C_0$
Horizontal		$0.43C_0$

DIMENSIONS(mm) PSU16 WITH SINGLE GUIDE TYPE END PLATE STOPPER

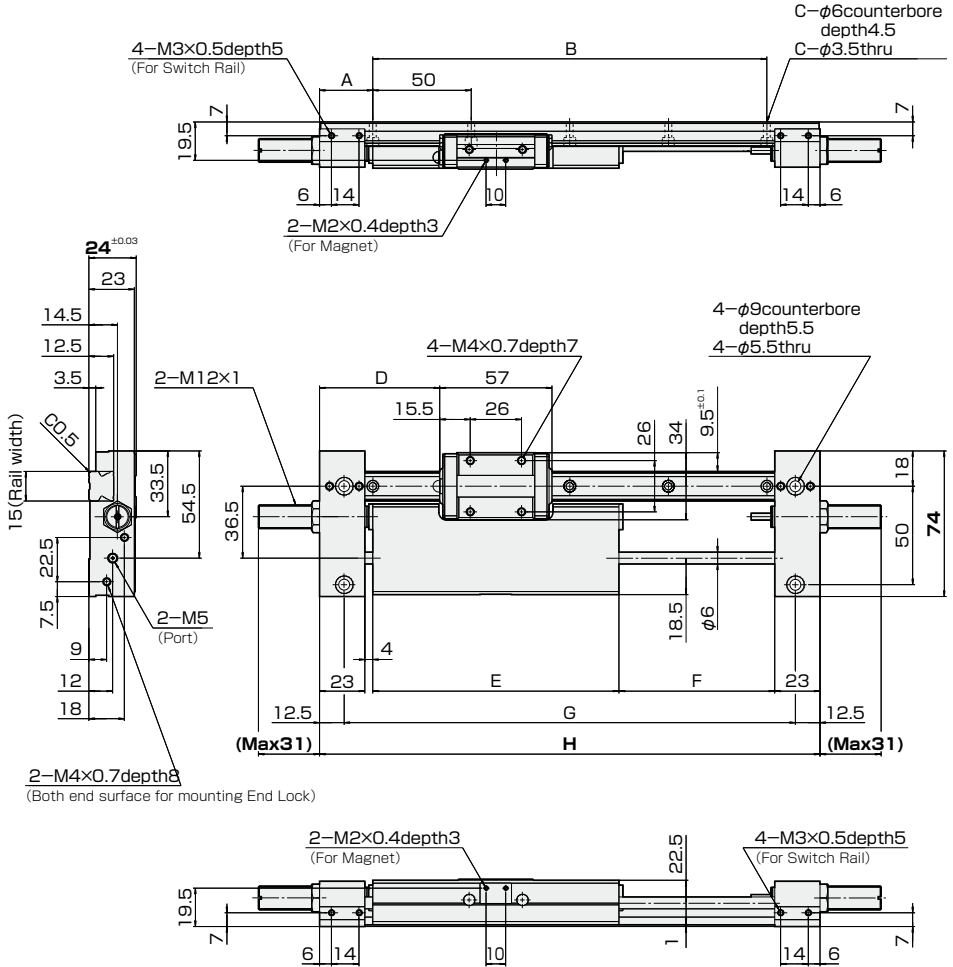
PSU-SD16-(Stroke)-QD

Guide Type
Single Type
Bore Size

Stopper
End Plate Type
Stroke Adjustment Amount...One Side -27mm(Total -54mm)
One Side +2mm(Total +4mm)

Switch Setting Position Page 522

Dimension of Shock Absorber Page 500



PICO SLIDER II PSU-SD16-QD

Stroke	A	B	C	D	E	F	G	H
25	39.5	100	3	48.5	100	29	154	179
50	27	150	4	48.5	100	54	179	204
75	27	200	5	61	125	79	229	254
100	27	250	6	73.5	150	104	279	304

Note: Middle one hole of rail mounting holes is not able to be used in case of 25 stroke since it will be hidden by bearing.

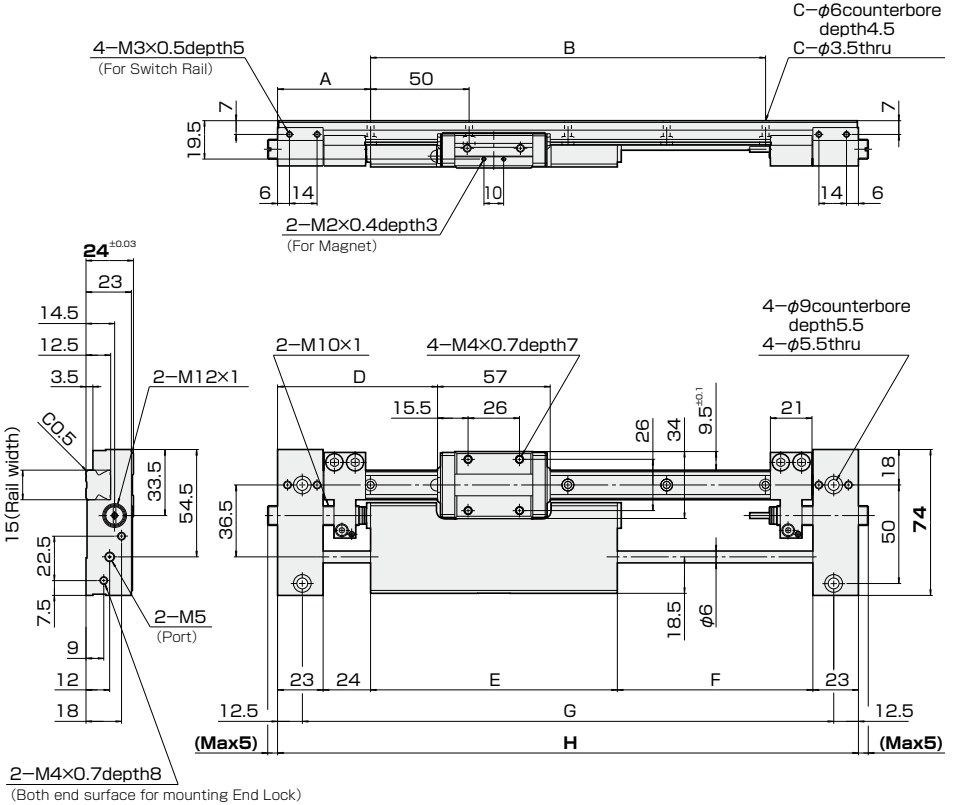
DIMENSIONS(mm) PSU16 WITH SINGLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-SD16-(Stroke)-QW

Guide Type
Single Type
Bore Size

Stopper
Intermediate Unit Type
Stroke Adjustment Amount...0--Stroke Value

Switch Setting Position Page 522
Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	34.5	150	4	68.5	100	49	194	219
50	47	150	4	68.5	100	74	219	244
75	47	200	5	81	125	99	269	294
100	47	250	6	93.5	150	124	319	344


DIMENSIONS(mm) PSU16 WITH PARALLEL DOUBLE GUIDE TYPE END PLATE STOPPER

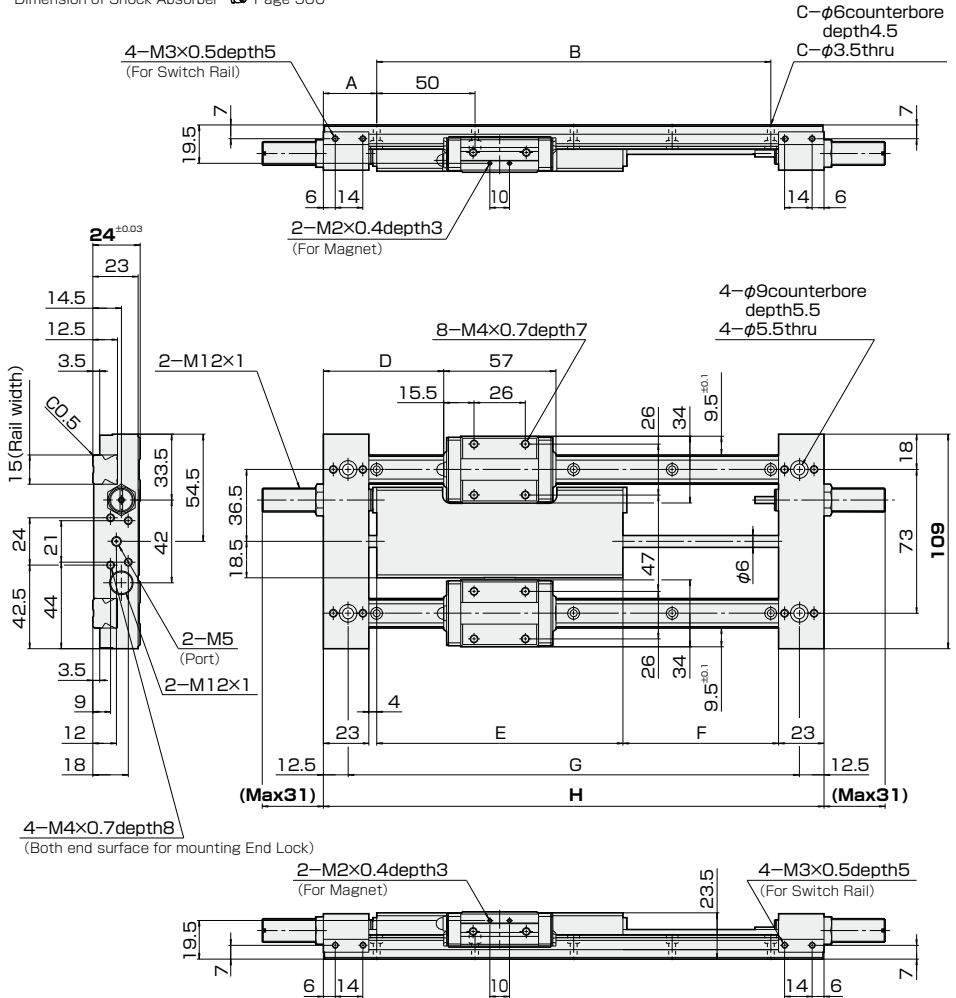
PSU-WR16-(Stroke)-QD

Guide Type
Parallel Double Type
Bore Size

Stopper
End Plate Type
Stroke Adjustment Amount... One Side -27mm (Total -54mm)
One Side +2mm (Total +4mm)

Switch Setting Position  Page 522

Dimension of Shock Absorber  Page 500



PICO SLIDER II PSU-WR16-QD

Stroke	A	B	C	D	E	F	G	H
25	39.5	100	3	48.5	100	29	154	179
50	27	150	4	48.5	100	54	179	204
75	27	200	5	61	125	79	229	254
100	27	250	6	73.5	150	104	279	304

Note: Middle one hole of rail mounting holes is not able to be used in case of 25 stroke since it will be hidden by bearing.

DIMENSIONS(mm) PSU16 WITH PARALLEL DOUBLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

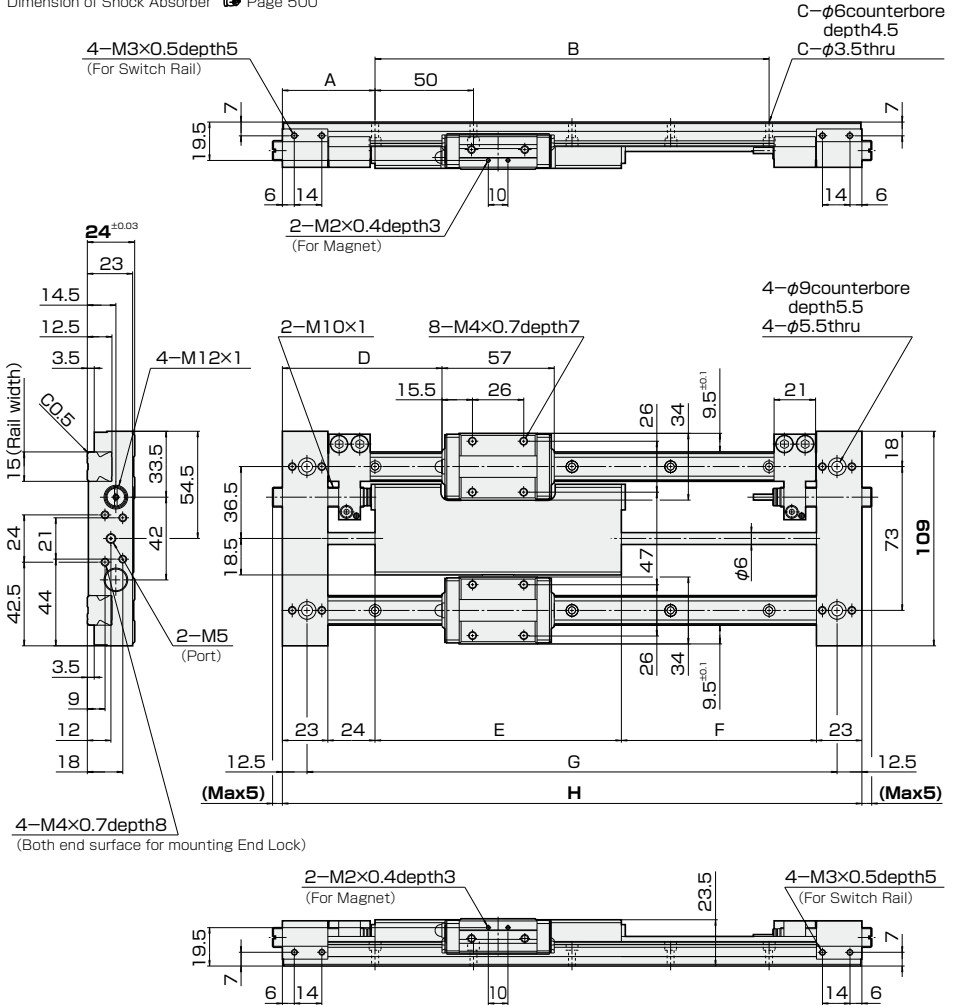
PSU-WR16--(Stroke)--QW

Guide Type
Parallel Double Type
Bore Size

Stopper
Intermediate Unit Type
Stroke Adjustment Amount...0~Stroke Value

Switch Setting Position Page 522

Dimension of Shock Absorber Page 500



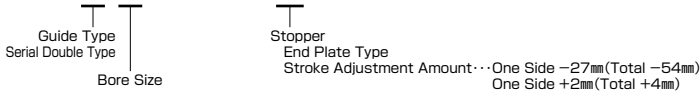
Stroke	A	B	C	D	E	F	G	H
25	34.5	150	4	68.5	100	49	194	219
50	47	150	4	68.5	100	74	219	244
75	47	200	5	81	125	99	269	294
100	47	250	6	93.5	150	124	319	344

PICO SLIDER II PSU-WR16-QW



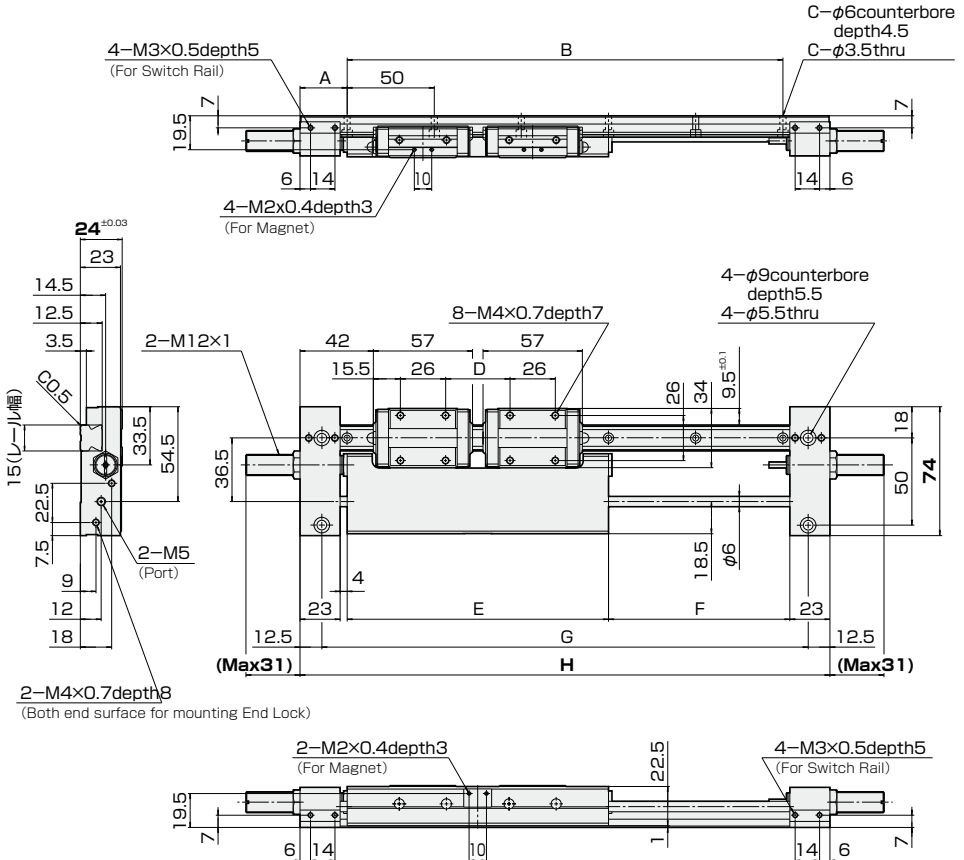
DIMENSIONS(mm) PSU16 WITH SERIAL DOUBLE GUIDE TYPE END PLATE STOPPER

PSU-WG16--(Stroke)--QD



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



PICO SLIDER II PSU-WG16-QD

Stroke	A	B	C	D	E	F	G	H
25	39.5	150	4	37	150	29	204	229
50	27	200	5	37	150	54	229	254
75	39.5	200	5	37	150	79	254	279
100	27	250	6	37	150	104	279	304

Stroke	A	B	C	D	E	F	G	H
125	27	300	7	62	175	129	329	354
150	27	350	8	87	200	154	379	404
175	27	400	9	112	225	179	429	454
200	27	450	10	137	250	204	479	504

Note: Middle one hole of rail mounting holes (Two holes in case of 25 stroke) is not able to be used in case of 25~75 stroke since it will be hidden by bearing.

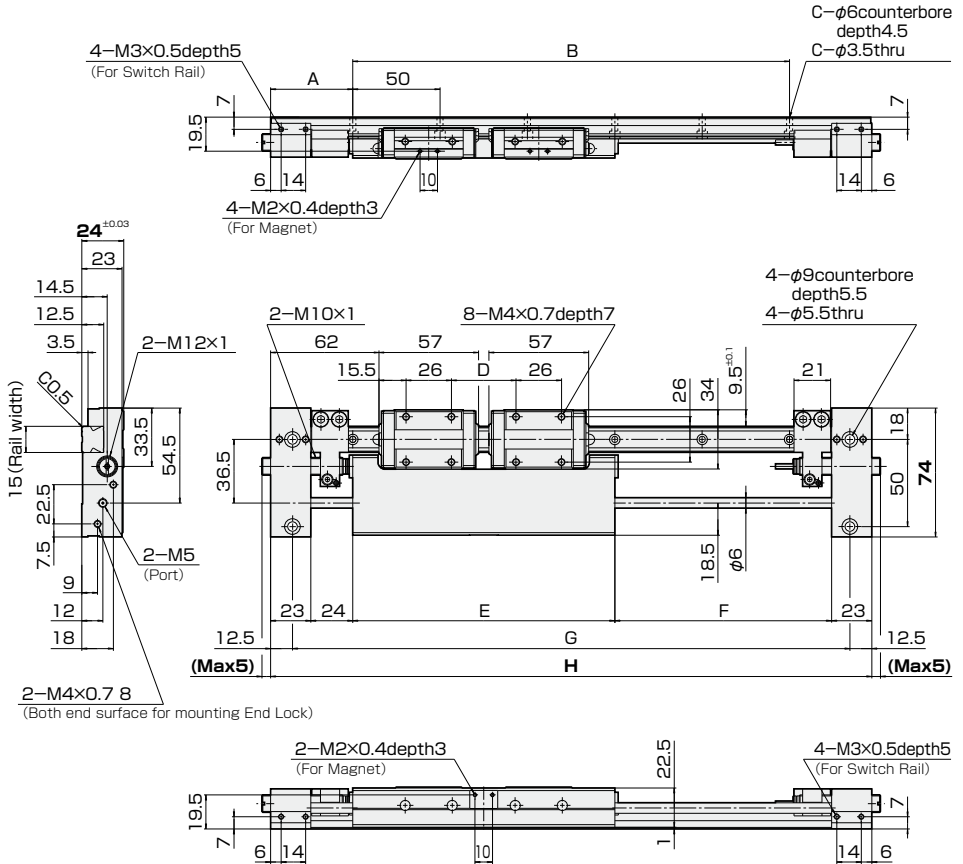
DIMENSIONS(mm) PSU16 WITH SERIAL DOUBLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WG16-(Stroke)-QW



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	34.5	200	5	37	150	49	244	269
50	47	200	5	37	150	74	269	294
75	34.5	250	6	37	150	99	294	319
100	47	250	6	37	150	124	319	344

Stroke	A	B	C	D	E	F	G	H
125	47	300	7	62	175	149	369	394
150	47	350	8	87	200	174	419	444
175	47	400	9	112	225	199	469	494
200	47	450	10	137	250	224	519	544

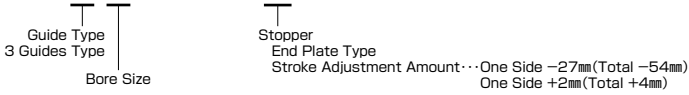
Note: Middle one hole of rail mounting holes is not able to be used in case of 25, 50 stroke since it will be hidden by bearing.
Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WG16-QW



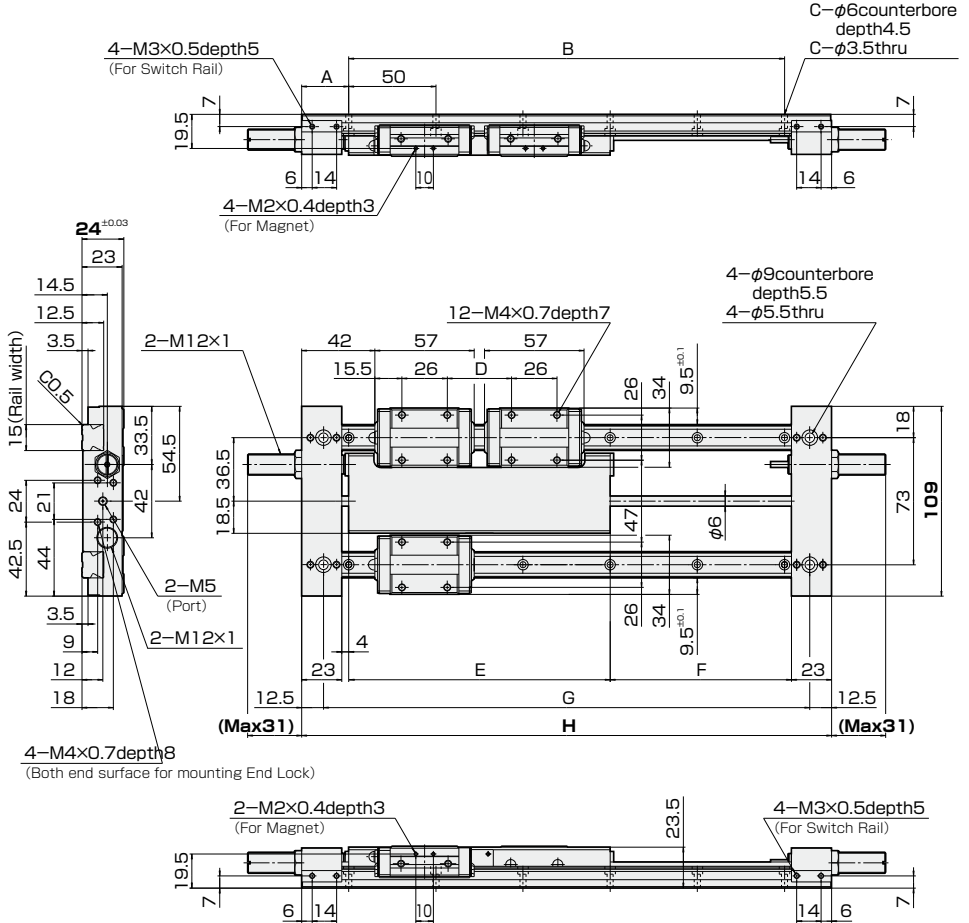
DIMENSIONS(mm) PSU16 WITH 3 GUIDES TYPE END PLATE STOPPER

PSU-WA16-(Stroke)-QD



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



PICO SLIDER II PSU-WA16-QD

Stroke	A	B	C	D	E	F	G	H
25	39.5	150	4	37	150	29	204	229
50	27	200	5	37	150	54	229	254
75	39.5	200	6	37	150	79	254	279
100	27	250	6	37	150	104	279	304

Stroke	A	B	C	D	E	F	G	H
125	27	300	7	82	175	129	329	354
150	27	350	8	87	200	154	379	404
175	27	400	9	112	225	179	429	454
200	27	450	10	137	250	204	479	504

Note: Middle one hole of rail mounting holes (Two holes in case of 25 stroke) is not able to be used in case of 25-75 stroke since it will be hidden by bearing.

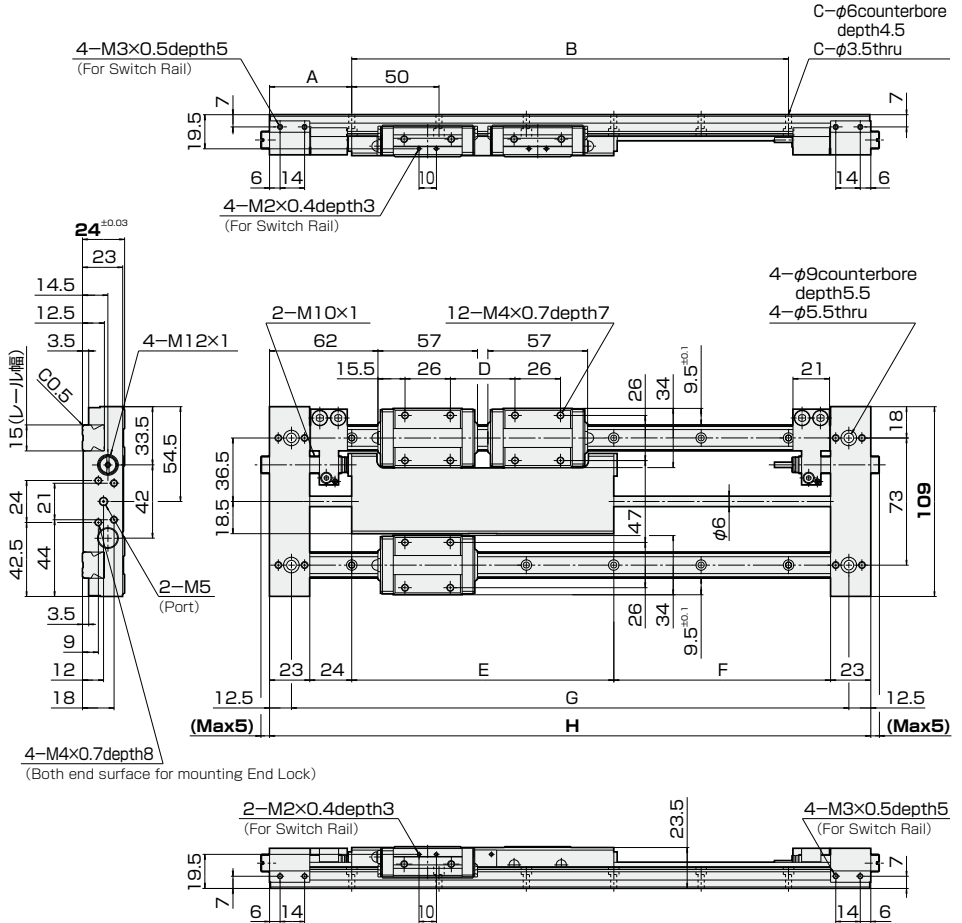
DIMENSIONS(mm) PSU16 WITH 3 GUIDES TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WA16-(Stroke)-QW



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	34.5	200	5	37	150	49	244	269
50	47	200	5	37	150	74	269	294
75	34.5	250	6	37	150	99	294	319
100	47	250	6	37	150	124	319	344

Stroke	A	B	C	D	E	F	G	H
125	47	300	7	62	175	149	369	394
150	47	350	8	87	200	174	419	444
175	47	400	9	112	225	199	469	494
200	47	450	10	137	250	224	519	544

Note: Middle one hole of rail mounting holes is not able to be used in case of 25, 50 stroke since it will be hidden by bearing.
Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WA16-QW

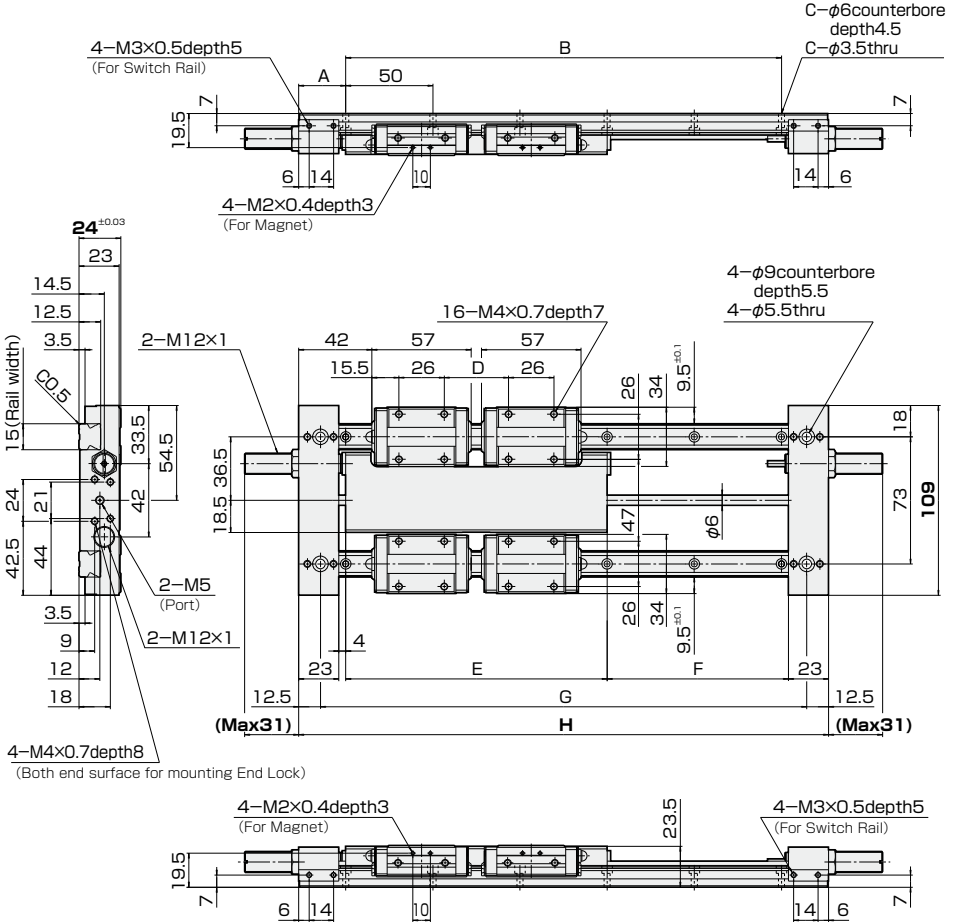


DIMENSIONS(mm) PSU16 WITH 4 GUIDES TYPE END PLATE STOPPER

PSU-WH16-(Stroke)-QD



Switch Setting Position Page 523
 Dimension of Shock Absorber Page 500



PICO SLIDER II PSU-WH16-QD

Stroke	A	B	C	D	E	F	G	H
25	39.5	150	4	37	150	29	204	229
50	27	200	5	37	150	54	229	254
75	39.5	200	6	37	150	79	254	279
100	27	250	6	37	150	104	279	304

Stroke	A	B	C	D	E	F	G	H
125	27	300	7	87	175	129	329	354
150	27	350	8	87	200	154	379	404
175	27	400	9	112	225	179	429	454
200	27	450	10	137	250	204	479	504

Note: Middle one hole of rail mounting holes (Two holes in case of 25 stroke) is not able to be used in case of 25-75 stroke since it will be hidden by bearing.

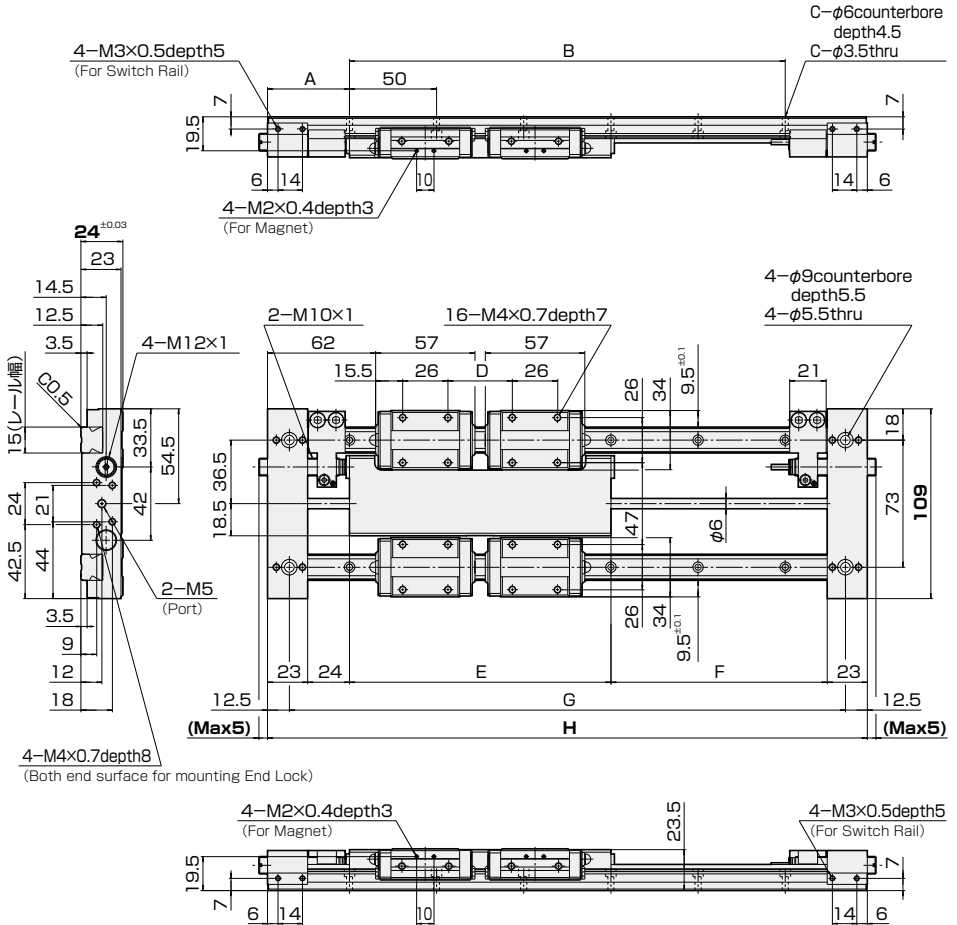
DIMENSIONS(mm) PSU16 WITH 4 GUIDES TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WH16-(Stroke)-QW



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	34.5	200	5	37	150	49	244	269
50	47	200	5	37	150	74	269	294
75	34.5	250	6	37	150	99	294	319
100	47	250	6	37	150	124	319	344

Stroke	A	B	C	D	E	F	G	H
125	47	300	7	62	175	149	369	394
150	47	350	8	87	200	174	419	444
175	47	400	9	112	225	199	469	494
200	47	450	10	137	250	224	519	544

Note: Middle one hole of rail mounting holes is not able to be used in case of 25, 50 stroke since it will be hidden by bearing.
Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WH16-QW



DIMENSIONS(mm) PSU25 WITH SINGLE GUIDE TYPE END PLATE STOPPER

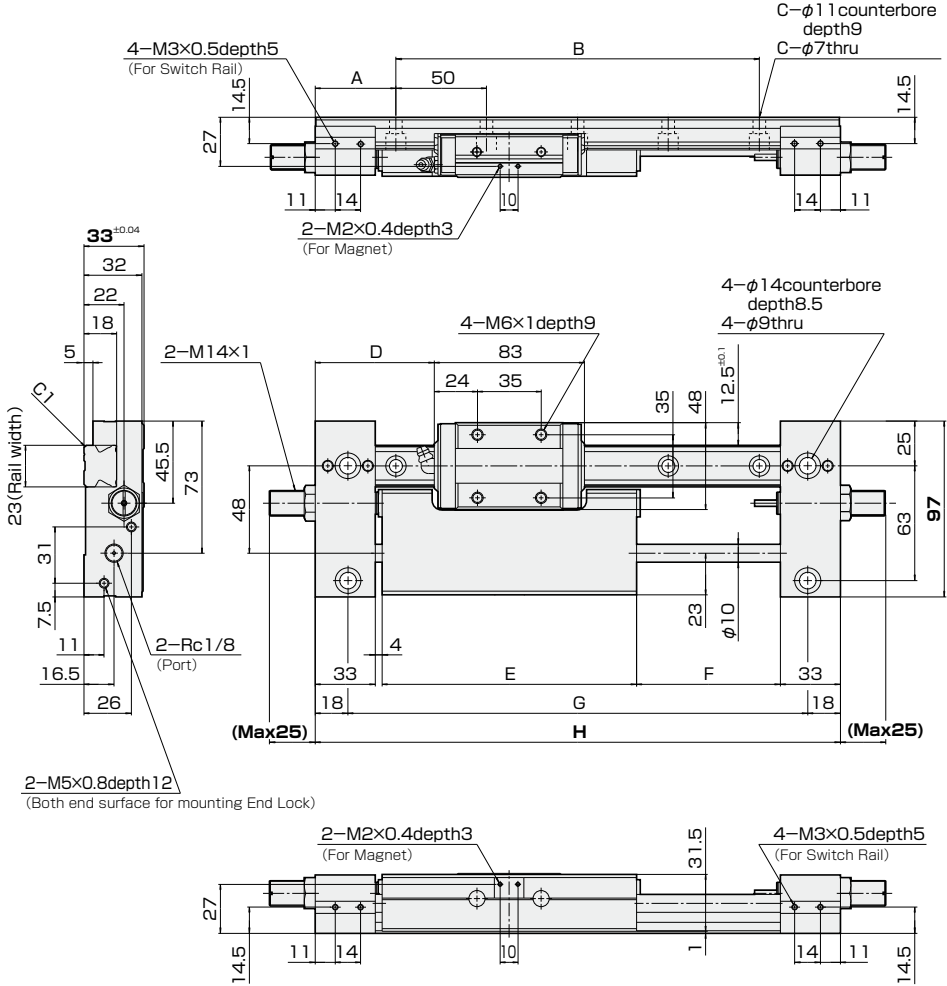
PSU-SD25-(Stroke)-QD

Guide Type
Single Type
Bore Size

Stopper
End Plate Type
Stroke Adjustment Amount...One Side -19mm(Total -38mm)
One Side +2mm(Total +4mm)

Switch Setting Position Page 522

Dimension of Shock Absorber Page 500



PICO SLIDER II PSU-SD25-QD

Stroke	A	B	C	D	E	F	G	H
25	57	100	3	53	115	29	178	214
50	44.5	150	4	53	115	54	203	239
75	44.5	200	5	65.5	140	79	253	289
100	44.5	250	6	78	165	104	303	339

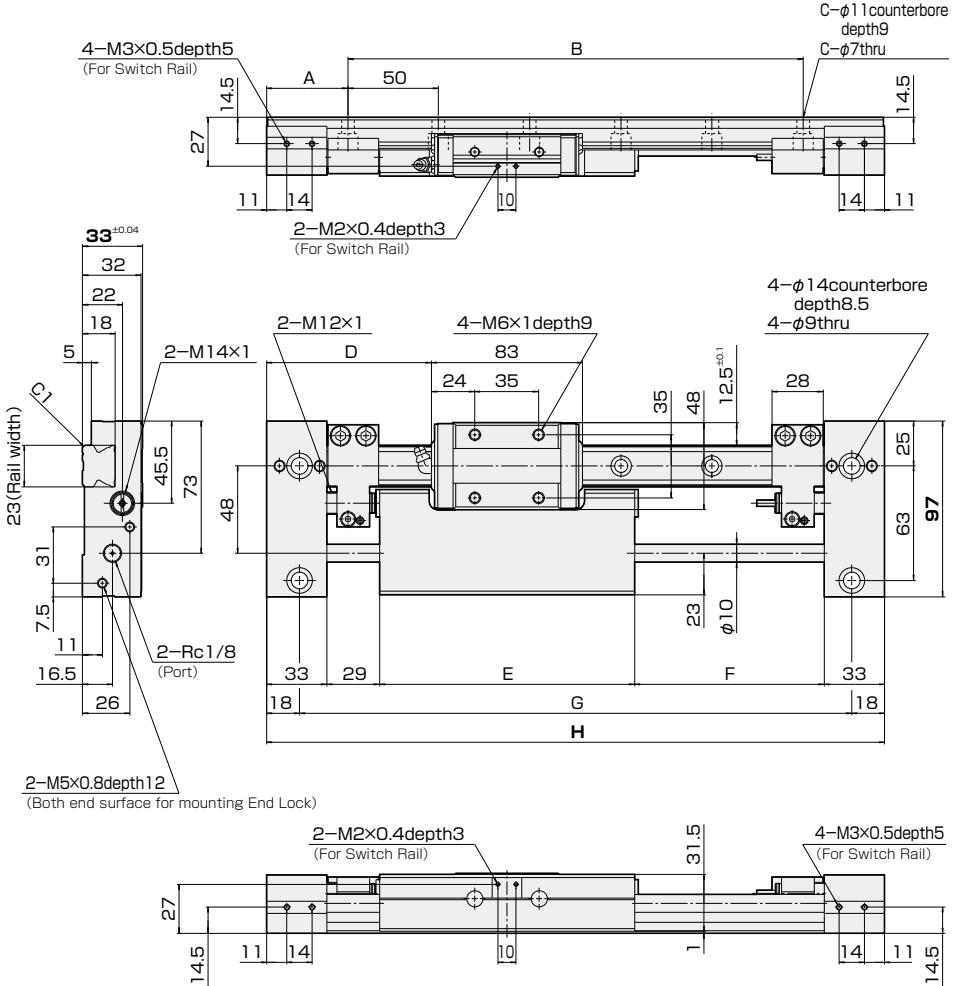
Note: Middle one hole of rail mounting holes is not able to be used in case of 25 stroke since it will be hidden by bearing.

DIMENSIONS(mm) PSU25 WITH SINGLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-SD25-(Stroke)-QW



Switch Setting Position Page 522
Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	150	4	78	115	54	228	264
50	44.5	200	5	78	115	79	253	289
75	44.5	250	6	90.5	140	104	303	339
100	44.5	300	7	103	165	129	353	389

PICO SLIDER II PSU-SD25-QW



DIMENSIONS(mm) PSU25 WITH PARALLEL DOUBLE GUIDE TYPE END PLATE STOPPER

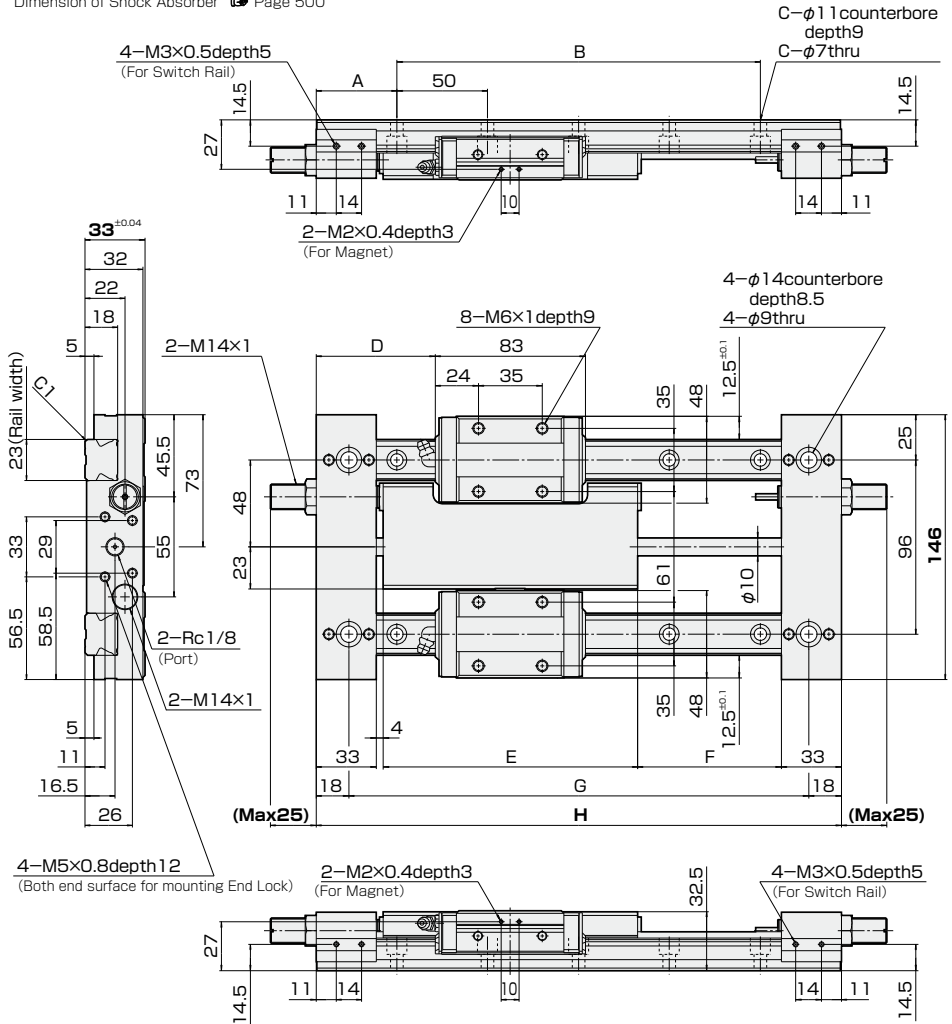
PSU-WR25-(Stroke)-QD

Guide Type
Parallel Double Type
Bore Size

Stopper
End Plate Type
Stroke Adjustment Amount ··· One Side -27mm (Total -54mm)
One Side +2mm (Total +4mm)

Switch Setting Position Page 522

Dimension of Shock Absorber Page 500



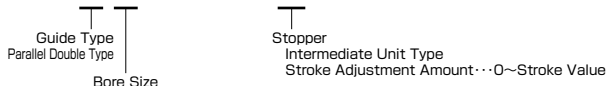
PICO SLIDER II PSU-WR25-QD

Stroke	A	B	C	D	E	F	G	H
25	57	100	3	53	115	29	178	214
50	44.5	150	4	53	115	54	203	239
75	44.5	200	5	65.5	140	79	253	289
100	44.5	250	6	78	165	104	303	339

Note: Middle one hole of rail mounting holes is not able to be used in case of 25 stroke since it will be hidden by bearing.

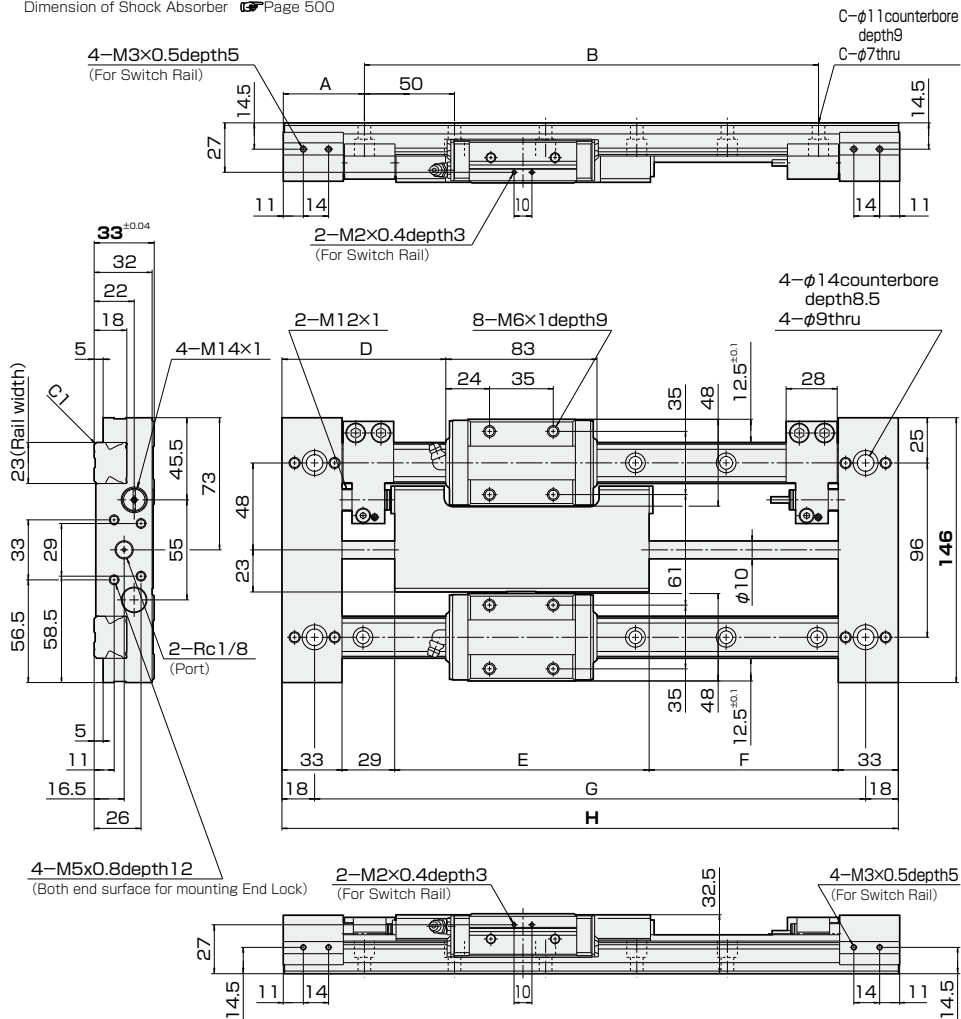
DIMENSIONS(mm) PSU25 WITH PARALLEL DOUBLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WR25-(Stroke)-QW



Switch Setting Position Page 522

Dimension of Shock Absorber Page 500



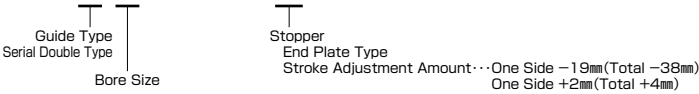
Stroke	A	B	C	D	E	F	G	H
25	57	150	4	78	115	54	228	264
50	44.5	200	5	78	115	79	253	289
75	44.5	250	6	90.5	140	104	303	339
100	44.5	300	7	103	165	129	353	389

PICO SLIDER II PSU-WR25-QW



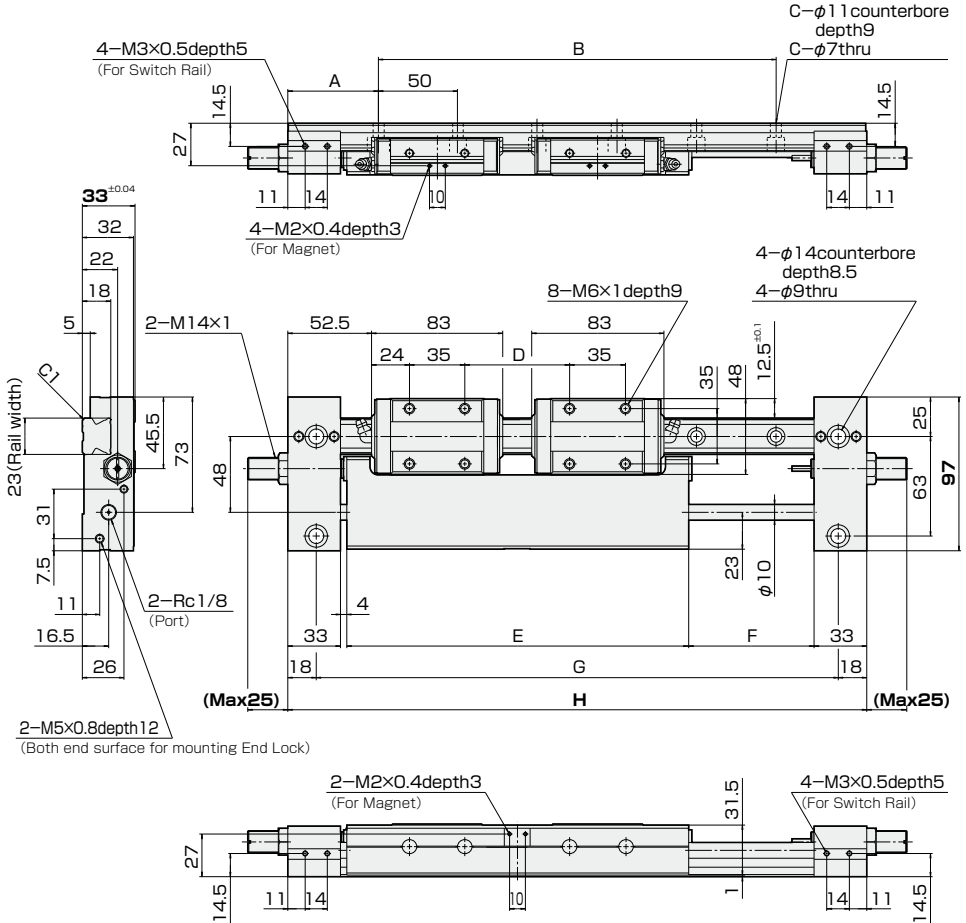
DIMENSIONS(mm) PSU25 WITH SERIAL DOUBLE GUIDE TYPE END PLATE STOPPER

PSU-WG25--(Stroke)--QD



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	200	5	66	215	29	278	314
50	44.5	250	6	66	215	54	303	339
75	57	250	6	66	215	79	328	364
100	44.5	300	7	66	215	104	353	389

Stroke	A	B	C	D	E	F	G	H
125	57	300	7	66	215	129	378	414
150	44.5	350	8	66	215	154	403	439
175	44.5	400	9	91	240	179	453	489
200	44.5	450	10	116	265	204	503	539

Note: Middle one hole of rail mounting holes (Three holes in case of 25 stroke. Two holes in case of 50, 75 stroke) is not able to be used in case of 25~125 stroke since it will be hidden by bearing.

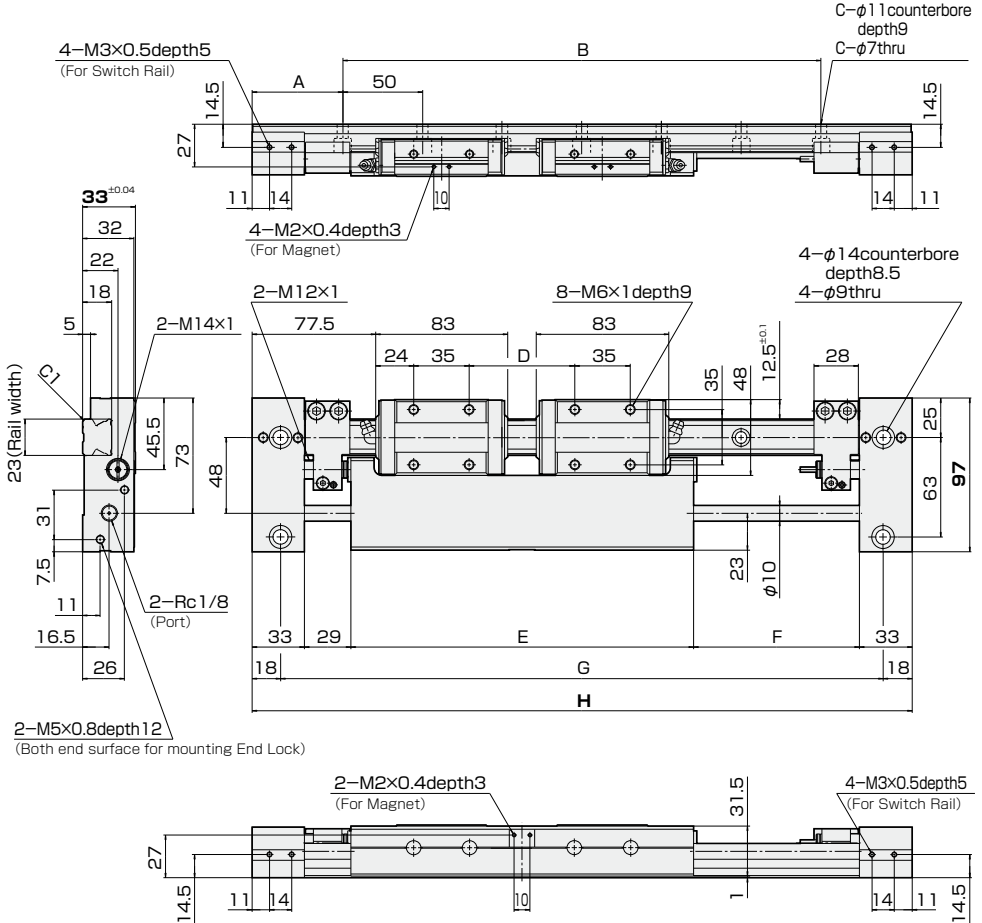
DIMENSIONS(mm) PSU25 WITH SERIAL DOUBLE GUIDE TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WG25-(Stroke)-QW

Guide Type
Serial Double Type
Bore Size

Stopper
Intermediate Unit Type
Stroke Adjustment Amount ··· 0~Stroke Value

Switch Setting Position Page 523
Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	250	6	66	215	54	328	364
50	44.5	300	7	66	215	79	353	389
75	57	300	7	66	215	104	378	414
100	44.5	350	8	66	215	129	403	439

Stroke	A	B	C	D	E	F	G	H
125	57	350	8	66	215	154	428	464
150	44.5	400	9	66	215	179	453	489
175	44.5	450	10	91	240	204	503	539
200	44.5	500	11	116	265	229	553	589

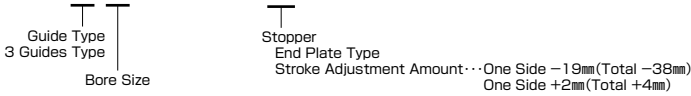
Note: Middle one hole of rail mounting holes (Two holes in case of 25 stroke) is not able to be used in case of 25~75 stroke since it will be hidden by bearing.
Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WG25-QW



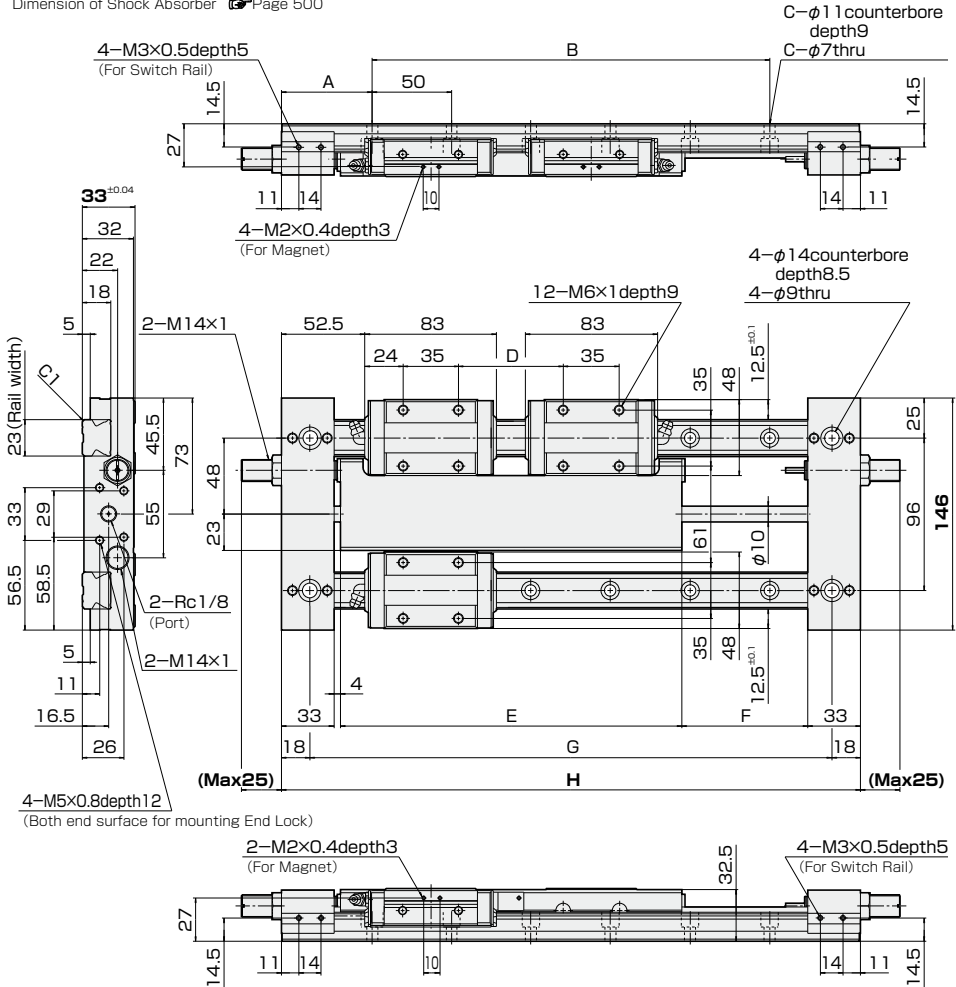
DIMENSIONS(mm) PSU25 WITH 3 GUIDES TYPE END PLATE STOPPER

PSU-WA25-(Stroke)-QD



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	200	5	66	215	29	278	314
50	44.5	250	6	66	215	54	303	339
75	57	250	6	66	215	79	328	364
100	44.5	300	7	66	215	104	353	389

Stroke	A	B	C	D	E	F	G	H
125	57	300	7	66	215	129	378	414
150	44.5	350	8	66	215	154	403	439
175	44.5	400	9	91	240	179	453	489
200	44.5	450	10	116	265	204	503	539

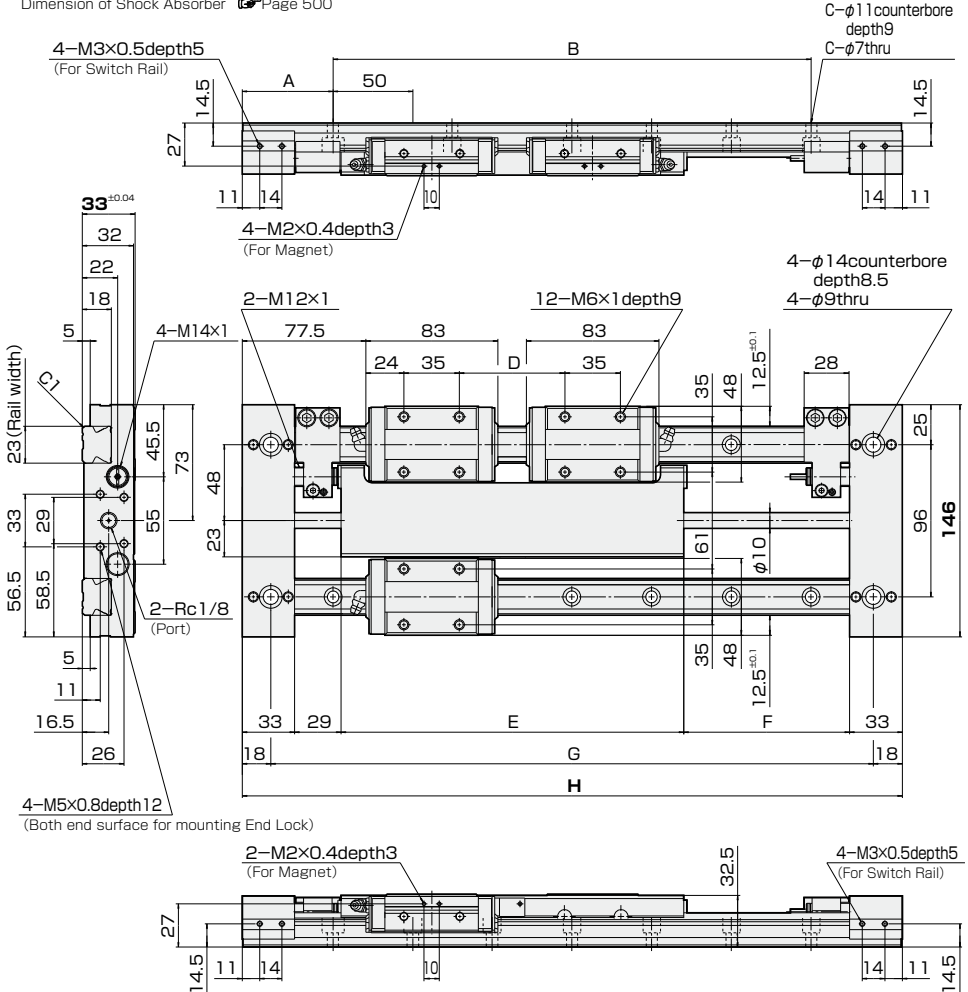
Note: Middle one hole of rail mounting holes (Three holes in case of 25 stroke. Two holes in case of 50, 75 stroke) is not able to be used in case of 25~125 stroke since it will be hidden by bearing.

DIMENSIONS(mm) PSU25 WITH 3 GUIDES TYPE INTERMEDIATE UNIT TYPE STOPPER

PSU-WA25-(Stroke)-QW



Switch Setting Position Page 523
Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	250	6	66	215	54	328	364
50	44.5	300	7	66	215	79	353	389
75	57	300	7	66	215	104	378	414
100	44.5	350	8	66	215	129	403	439

Stroke	A	B	C	D	E	F	G	H
125	57	350	8	66	215	154	428	464
150	44.5	400	9	66	215	179	453	489
175	44.5	450	10	91	240	204	503	539
200	44.5	500	11	116	265	229	553	589

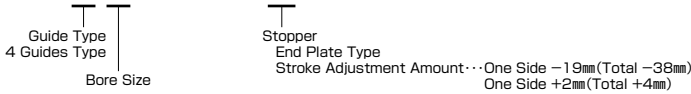
Note: Middle one hole of rail mounting holes (in case of 25 stroke) is not able to be used in case of 25~75 stroke since it will be hidden by bearing.
Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WA25-QW



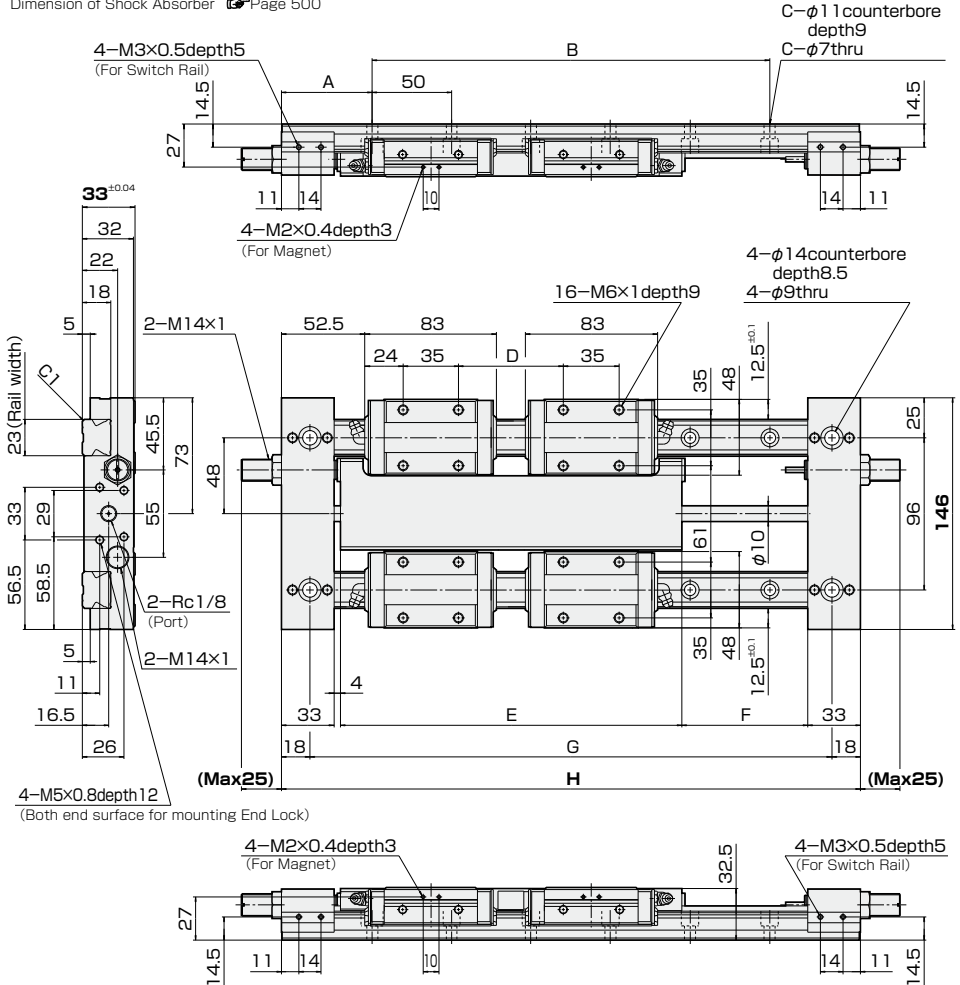
DIMENSIONS(mm) PSU25 WITH 4 GUIDES TYPE END PLATE STOPPER

PSU-WH25--(Stroke)-QD



Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	200	5	66	215	29	278	314
50	44.5	250	6	66	215	54	303	339
75	57	250	6	66	215	79	328	364
100	44.5	300	7	66	215	104	353	389

Stroke	A	B	C	D	E	F	G	H
125	57	300	7	66	215	129	378	414
150	44.5	350	8	66	215	154	403	439
175	44.5	400	9	91	240	179	453	489
200	44.5	450	10	116	265	204	503	539

Note: Middle one hole of rail mounting holes (Three holes in case of 25 stroke. Two holes in case of 50, 75 stroke) is not able to be used in case of 25~125 stroke since it will be hidden by bearing.

DIMENSIONS(mm) PSU25 WITH 4 GUIDES TYPE INTERMEDIATE UNIT TYPE STOPPER

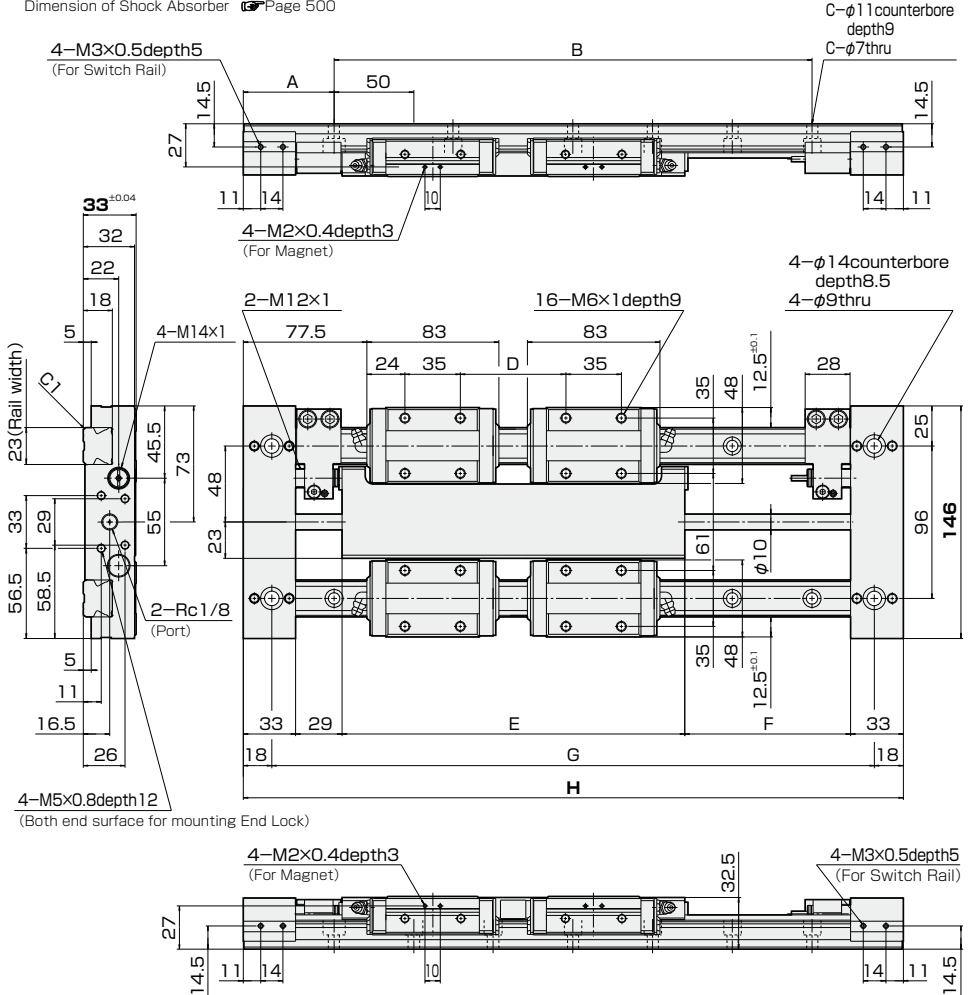
PSU-WH25-(Stroke)-QW

Guide Type
4 Guides Type
Bore Size

Stopper
Intermediate Unit Type
Stroke Adjustment Amount...0~Stroke Value

Switch Setting Position Page 523

Dimension of Shock Absorber Page 500



Stroke	A	B	C	D	E	F	G	H
25	57	250	6	66	215	54	328	364
50	44.5	300	7	66	215	79	353	389
75	57	300	7	66	215	104	378	414
100	44.5	350	8	66	215	129	403	439

Stroke	A	B	C	D	E	F	G	H
125	57	350	8	66	215	154	428	464
150	44.5	400	9	66	215	179	453	489
175	44.5	450	10	91	240	204	503	539
200	44.5	500	11	116	265	229	553	589

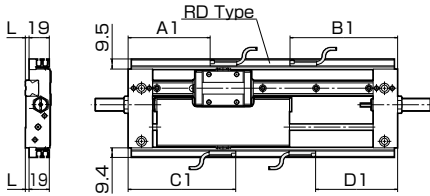
Note: Middle one hole of rail mounting holes (Two holes in case of 25 stroke) is not able to be used in case of 25~75 stroke since it will be hidden by bearing. Please use other mounting holes by moving intermediate stopper.

PICO SLIDER II PSU-WH25-QW

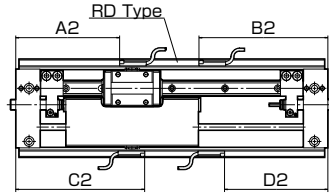


SWITCH SETTING POSITION

Guide Type :SD(Single Type), WR(Parallel Double Type)
 Stopper Type :GD(End Plate Type)



Guide Type :SD(Single Type), WR(Parallel Double Type)
 Stopper Type :QW(Intermediate Unit Type)



L Dimension

PSU16.....3.5mm

PSU25.....11mm

RB(RC) 1, 2 Switch

Model	Stroke	Switch Setting Position (mm)			
		A1	B1	C1	D1
PSU16	25	65	89	89	65
	50	65	89	89	65
	75	77.5	101.5	101.5	77.5
	100	90	114	114	90
PSU25	25	82.5	106.5	106.5	82.5
	50	82.5	106.5	106.5	82.5
	75	95	119	119	95
	100	107.5	131.5	131.5	107.5

RB(RC) 1, 2 Switch

Model	Stroke	Switch Setting Position (mm)			
		A2	B2	C2	D2
PSU16	25	85	109	109	85
	50	85	109	109	85
	75	97.5	121.5	121.5	97.5
	100	110	134	134	110
PSU25	25	107.5	131.5	131.5	107.5
	50	107.5	131.5	131.5	107.5
	75	120	144	144	120
	100	132.5	156.5	156.5	132.5

RB(RC)4, 5 Switch

Model	Stroke	Switch Setting Position (mm)			
		A1	B1	C1	D1
PSU16	25	67	87	87	67
	50	67	87	87	67
	75	79.5	99.5	99.5	79.5
	100	92	112	112	92
PSU25	25	84.5	104.5	104.5	84.5
	50	84.5	104.5	104.5	84.5
	75	97	117	117	97
	100	109.5	129.5	129.5	109.5

RB(RC)4, 5 Switch

Model	Stroke	Switch Setting Position (mm)			
		A2	B2	C2	D2
PSU16	25	87	107	107	87
	50	87	107	107	87
	75	99.5	119.5	119.5	99.5
	100	112	132	132	112
PSU25	25	109.5	129.5	129.5	109.5
	50	109.5	129.5	129.5	109.5
	75	122	142	142	122
	100	134.5	154.5	154.5	134.5

Note: For the one-side intermediate unit type (QV) of the model with an end lock mechanism (PSUH), apply values under A1 and C1 (or B1 and D1) for the end lock mechanism side and B2 and D2 (or A2 and C2) for the intermediate unit side.

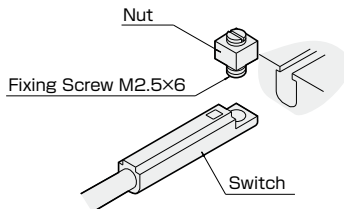
On Hold Distance, Hysteresis Unit: mm

Model	On Hold Distance(θ)	Hysteresis(c)
RB(RC) 1, 2	6	1
RB(RC) 4, 5	2	1

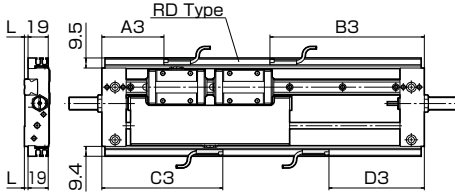
Explanation of hysteresis and on hold distance. ☞ see Switch Catalogue

Installation of Switch

Assemble the fixing screw with a nut to the switch.
 Insert the switch into the groove.
 After setting the position, fasten the screw by a screwdriver.
 Fastening torque of fixing screw must be 0.1 N·m.



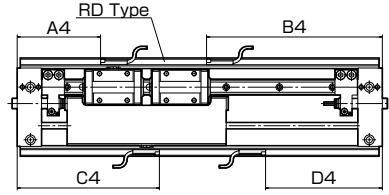
Guide Type :WG(Serial Double Type), WA(3 Guides Type), WH(4 Guides Type)
Stopper Type :QD(End Plate Type)



L Dimension
PSU16.....3.5mm
PSU25.....11mm

Note: Values in parentheses are for
WA and WH.
A3 and B3 are common to
WG, WA and WH

Guide Type :WG(Serial Double Type), WA(3 Guides Type), WH(4 Guides Type)
Stopper Type :QW(Intermediate Unit Type)



Note: Values in parentheses are for
WA and WH.
A4 and B4 are common to
WG, WA and WH

RB(RC) 1, 2 Switch

Model	Stroke	Switch Setting Position (mm)			
		A3	B3	C3	D3
PSU16	25	58.5	145.5	114(82.5)	90(121.5)
	50	58.5	145.5	114(82.5)	90(121.5)
	75	58.5	145.5	114(82.5)	90(121.5)
	100	58.5	145.5	114(82.5)	90(121.5)
	125	58.5	170.5	126.5(82.5)	102.5(146.5)
	150	58.5	195.5	139(82.5)	115(171.5)
	175	58.5	220.5	151.5(82.5)	127.5(196.5)
	200	58.5	245.5	164(82.5)	140(221.5)
PSU25	25	82	207	156.5(106)	132.5(183)
	50	82	207	156.5(106)	132.5(183)
	75	82	207	156.5(106)	132.5(183)
	100	82	207	156.5(106)	132.5(183)
	125	82	207	156.5(106)	132.5(183)
	150	82	207	156.5(106)	132.5(183)
	175	82	232	169(106)	145(208)
	200	82	257	181.5(106)	157.5(233)

RB(RC) 1, 2 Switch

Model	Stroke	Switch Setting Position (mm)			
		A4	B4	C4	D4
PSU16	25	78.5	165.5	134(102.5)	110(141.5)
	50	78.5	165.5	134(102.5)	110(141.5)
	75	78.5	165.5	134(102.5)	110(141.5)
	100	78.5	165.5	134(102.5)	110(141.5)
	125	78.5	190.5	146.5(102.5)	122.5(166.5)
	150	78.5	215.5	159(102.5)	135(191.5)
	175	78.5	240.5	171.5(102.5)	147.5(216.5)
	200	78.5	265.5	184(102.5)	160(241.5)
PSU25	25	107	232	181.5(131)	157.5(208)
	50	107	232	181.5(131)	157.5(208)
	75	107	232	181.5(131)	157.5(208)
	100	107	232	181.5(131)	157.5(208)
	125	107	232	181.5(131)	157.5(208)
	150	107	232	181.5(131)	157.5(208)
	175	107	257	194(131)	170(233)
	200	107	282	206.5(131)	182.5(258)

RB(RC)4, 5 Switch

Model	Stroke	Switch Setting Position (mm)			
		A3	B3	C3	D3
PSU16	25	60.5	143.5	112(80.5)	92(123.5)
	50	60.5	143.5	112(80.5)	92(123.5)
	75	60.5	143.5	112(80.5)	92(123.5)
	100	60.5	143.5	112(80.5)	92(123.5)
	125	60.5	168.5	124.5(80.5)	104.5(148.5)
	150	60.5	193.5	137(80.5)	117(173.5)
	175	60.5	218.5	149.5(80.5)	129.5(198.5)
	200	60.5	243.5	162(80.5)	142(223.5)
PSU25	25	84	205	154.5(104)	134.5(185)
	50	84	205	154.5(104)	134.5(185)
	75	84	205	154.5(104)	134.5(185)
	100	84	205	154.5(104)	134.5(185)
	125	84	205	154.5(104)	134.5(185)
	150	84	205	154.5(104)	134.5(185)
	175	84	230	167(104)	147(210)
	200	84	255	179.5(104)	159.5(235)

RB(RC)4, 5 Switch

Model	Stroke	Switch Setting Position (mm)			
		A4	B4	C4	D4
PSU16	25	80.5	163.5	132(100.5)	112(143.5)
	50	80.5	163.5	132(100.5)	112(143.5)
	75	80.5	163.5	132(100.5)	112(143.5)
	100	80.5	163.5	132(100.5)	112(143.5)
	125	80.5	188.5	144.5(100.5)	124.5(168.5)
	150	80.5	213.5	157(100.5)	137(193.5)
	175	80.5	238.5	169.5(100.5)	149.5(218.5)
	200	80.5	263.5	182(100.5)	162(243.5)
PSU25	25	109	230	179.5(129)	159.5(210)
	50	109	230	179.5(129)	159.5(210)
	75	109	230	179.5(129)	159.5(210)
	100	109	230	179.5(129)	159.5(210)
	125	109	230	179.5(129)	159.5(210)
	150	109	230	179.5(129)	159.5(210)
	175	109	255	192(129)	172(235)
	200	109	280	204.5(129)	184.5(260)

Note: For the one-side intermediate unit type (QV) of the model with an end lock mechanism (PSUH), apply values under A1 and C1 (or B1 and D1) for the end lock mechanism side and B2 and D2 (or A2 and C2) for the intermediate unit side.

Custom made

■ To change grease

- Change the grease of bearing part to the other grease.
- There is a case might not be handled depends on kind of grease or request.
- Cylinder grease at the cylinder part can not be exchanged to assure operation performance of product.
- Grease of purchased item can not be exchanged.

Please ask us for more detailed information.

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