PICO TABLE®

PPT Series

Registration of Utility Model

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PICO TABLE LINE UP

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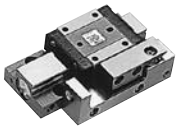
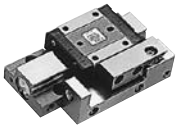
End Lock Mechanism Type PPTH		169 Page
End Lock Mechanism Type + **Floating Mechanism Type** PPTG		207 Page
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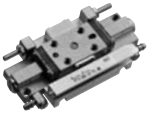
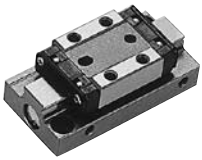
Size



PPT4

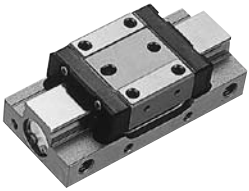
PPT6Y

PPT6M

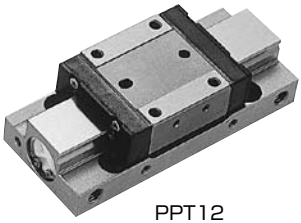


PPT6

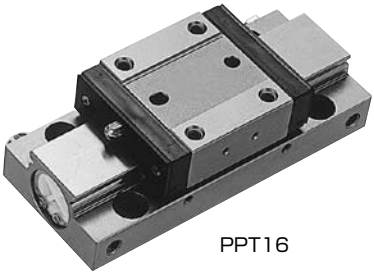
PPT8



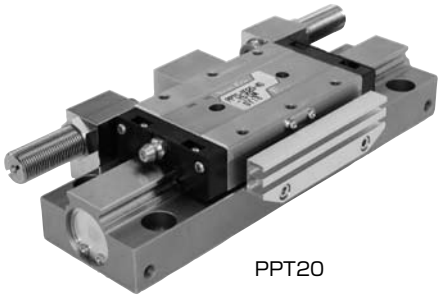
PPT10



PPT12



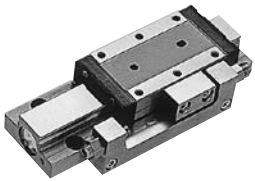
PPT16



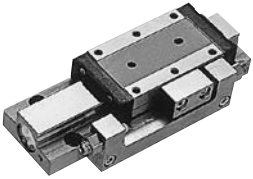
PPT20

Stopper (Option)

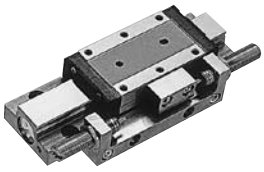
Without Stroke Adjustment



With Metal Stopper



With Rubber Stopper

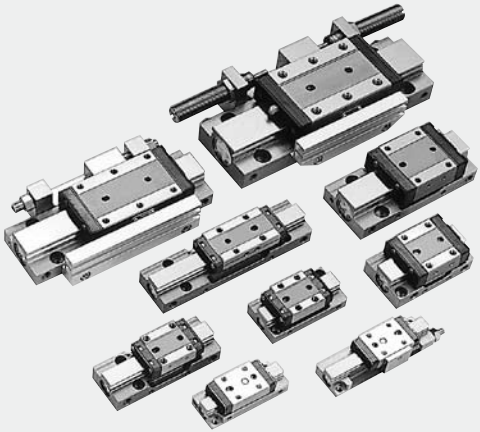


With Shock Absorber

PICO TABLE®

PPT Series

Registration of Utility Model
Registration of a Design



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PICO TABLE

PPT Series (φ4, φ6, φ8, φ10, φ12, φ16, φ20)

Miniature Precision Linear Bearing with Integrated Air Cylinder

Abundant Variations and Options

Running Parallelism 0.003mm (PPT16, 20), Mounting Parallelism 0.02mm (PPT10,12,16, 20)

Linear Bearing

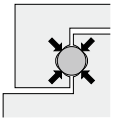
High Accuracy, High Rigidity
Linear Guide is built-in.

Stroke Adjustment
Metal Stopper
Rubber Stopper
Shock Absorber

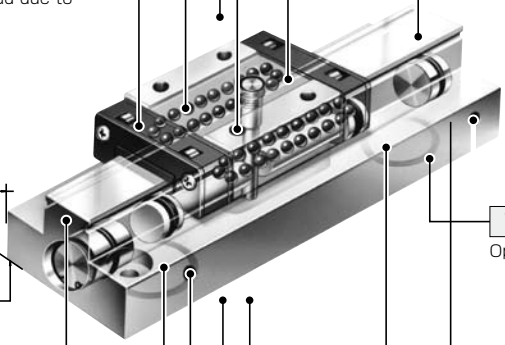
Precision Linear Bearing
High-accuracy, high-rigidity Linear Guide of Linear Motion.

Installation of Tool
Direct mounting on the top

4-Points Contact
Strong structure for complex load/fluctuating load due to 4-points contact system



Anti-Corrosion
Stainless steel



Pin Holes for Positioning
Addition of pin hole on the top of the table for installation/detaching

Datum Plane

With End Lock System
Option ☞169 Page
☞207 Page

Datum Plane

Pin Holes for Positioning
Addition of pin hole on the bottom of body for body installation/detaching

Switch
8 kinds of switches can be installed (Except PPT6M, 6)

Symmetric
Option

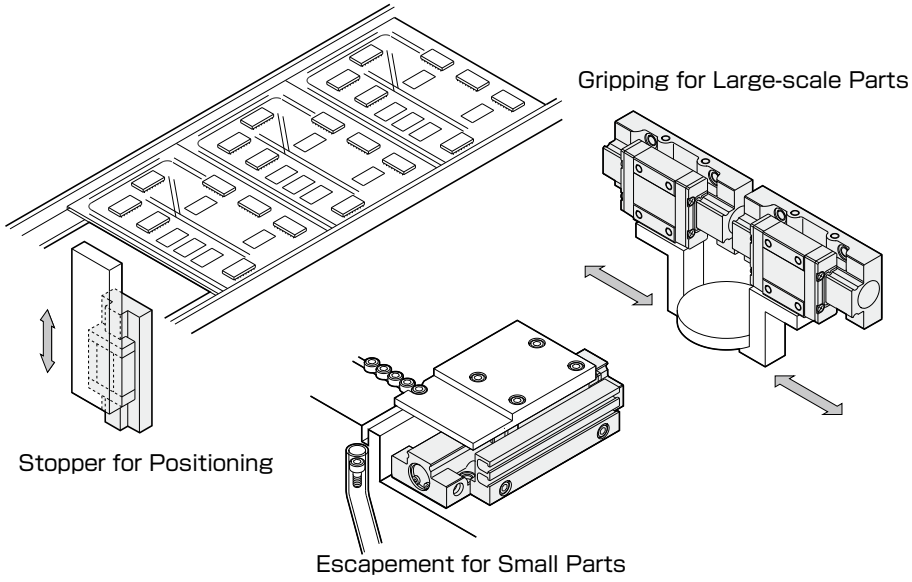
With Floating System
Option ☞Page123

Piping Port
Side ported(TP) or base mounted(PP) is is available.
Axial ported(LP) is available for PPT6Y only.

Summary of The PICO TABLE

"PICO TABLE" (PPT series) could achieve extraordinary small, high accuracy and rigidity which linear bearing guide has in kind. That is the reason why PICO TABLE is made by combination with air cylinder and precision linear bearing.
There are seven types of bore size. And there are three kinds of stroke adjustment, metal stopper, rubber stopper and shock absorber. It is available for PPT8, 10, 12 and 16 about shock absorber.
For PPT6Y, it is available to exchange the position of ports.
Besides, installation of switch that can detect position of stroke is available.(except PPT6, PPT6M) The symmetric type is also available.
So PPT has abundantly many choices for use.
Refer to PPTF(with floating), PPTH(with end lock), PPTG(with end lock and floating), PPTN(clean type), PPTNF(clean type with floating) and PPU(overhang type).

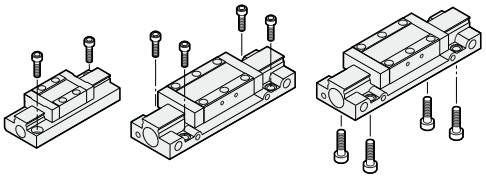
■Application Examples : PICO TABLE



■MAIN BODY INSTALLATION
(Bolt as shown in the figure are not supplied with products)

Top Mounting
(Thru Hole used)

Bottom Mounting
(Body tap)

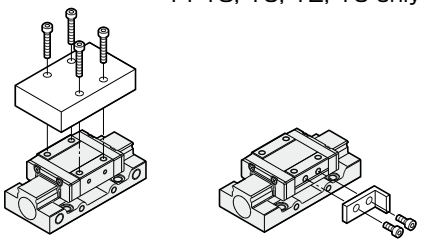


PPT6Y, 6M, 6　PPT8, 10, 12, 16, 20

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

Top Mounting

Side Mounting
PPT8, 10, 12, 16 only



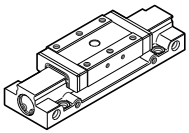
Model Code Example

PPTS-GT6Y-10-TPQR-RB12LA

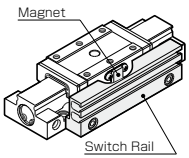
Series Name●

Magnet and Switch Rail●

No Code	None



S	Magnet and Switch Rail



A magnet and switch rail is required when mounting switches.
For PPT6Y, 8, 10 12 and 16, S is available

●Bore Size

4	φ 4
6Y	φ 6
6M	φ 6
6	φ 6
8	φ 8
10	φ10
12	φ12
16	φ16
20	φ20

φ4 For details ☞go to website
φ20 For details ☞go to website

●Piping

TP	Side Ported
PP	Base Mounted
LP	Axial Ported

LP is only PPT6Y.
For details ☞see page 43

●Cable Length

No Code	1m
LA	3m

●Number of Switches

1	1
2	2

Switch●

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

Direction of Cable Outlet For details ☞Page 1066, 1067

RB···· Straight Outlet Cable

RC···· Angle Outlet Cable

●Stroke Unit : mm

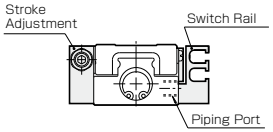
Model	Standard Stroke					
	5	10	15	20	25	30
PPT6Y	●	●	—	—	—	—
PPT6M	●	●	—	—	—	—
PPT6	●	●	—	—	—	—
PPT8	●	●	—	●	—	—
PPT10	●	●	—	●	—	—
PPT12	—	—	●	—	●	—
PPT16	—	—	—	●	—	●

For an intermediate stroke, select a model with the stroke adjustment.

Location of Switch and Stroke Adjustment●

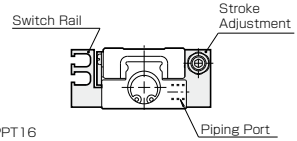
SD	Basic

PPT6M, 6 (S is not available.)
PPT8, 10, 12, 16



GT	Symmetric

PPT6Y, 8, 10, and 12 only

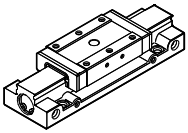


(Possible to convert into symmetric model by changing blank plugs position.)

●PPT6Y has only GT. SD is not available. Specify GT even though stroke adjuster and switch rail are not required.
●PPT16 is possible to convert into symmetric model by changing blank plugs position. ☞See page 53
●For the option combination ☞See page 48

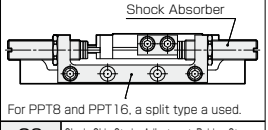
Stroke Adjustment Mechanism●

No Code	Without Stroke Adjustment



QM	Both Sides Stroke Adjustment, Shock Absorber

PPT8, 10, 12, 16
Not available for GT



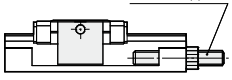
For PPT8 and PPT16, a split type a used.

QP	Single Side Stroke Adjustment, Metal Stopper

PPT6M, 6

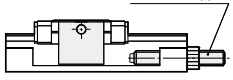
QN	Single Side Stroke Adjustment, Metal Stopper

PPT8-5, 10-5



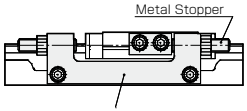
QS	Single Side Stroke Adjustment, Rubber Stopper

PPT6M, 6
PPT8-5, 10-5



QR	Both Sides Stroke Adjustment, Metal Stopper

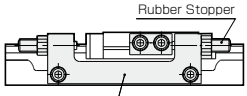
PPT6Y, 8, 10, 12, 16



For PPT6Y and PPT16, a split type is used.

QT	Both Sides Stroke Adjustment, Rubber Stopper

PPT8, 10, 12, 16



For PPT16, a split type is used.

●For details of Switch, Stroke Adjustment ☞see page 48
●For details of Stroke Adjustment Range ☞see page 43
●Shock absorber has been converted to new type.
Option Code has been converted as well. (QZ→QM) ☞see page 46, 64

SPECIFICATIONS

Model		PPT6Y	PPT6M	PPT6	PPT8	PPT10	PPT12	PPT16
Bore Size		φ6mm	φ6mm	φ6mm	φ8mm	φ10mm	φ12mm	φ16mm
Maximum Load Mass	Without Stroke Adjustment	0.2kg	0.2kg	0.3kg	0.3kg	0.8kg	1.2kg	2.0kg
	With Metal Stopper	0.1kg	0.1kg	0.15kg	0.25kg	0.4kg	0.6kg	1.0kg
	With Rubber Stopper	—	0.13kg	0.2kg	0.5kg(注)	0.8kg	1.2kg	2.0kg
	With Shock Absorber	—	—	—	1.0kg	1.6kg	2.0kg	4.0kg
Guide Mechanism		Linear Guide						
Type of Operation		Double Acting						
Fluid		Air						
Maximum Operating Pressure		0.70MPa						
Minimum Operating Pressure		0.15MPa						
	With Shock Absorber	—	—	—	0.25MPa	0.20MPa	0.15MPa	0.15MPa
Proof Pressure		1.05MPa						
Operating Temperature		5~60℃						
Minimum Operating Speed		50mm/s				30mm/s		
Maximum Operating Cycle		120c.p.m.						
	With Shock Absorber	—	—	—	45c.p.m.			60c.p.m.
Lubrication		Not Required						
Cushioning	Basic	None						
	Option	—	Rubber Stopper		Rubber Stopper. Shock Absorber			

Note: About PPT8-5, the maximum load mass with rubber stopper is 0.3kg as same as are without stroke adjustment. 1MPa=10.2kgf/^{2}

THE TYPE OF LINEAR GUIDE

Model	Stroke	Type
PPT6Y	5	Rail Size6
	10	Rail Size6
PPT6M	5	THK RSR7C1 long
	10	THK RSR7C1 long
PPT6	5	THK RSR9C1
	10	THK RSR9C1
PPT8	5	THK RSR9C1
	10	THK RSR9C1
	20	THK RSR9C1 long
PPT10	5	IKO LWL12
	10	IKO LWL12
	20	IKO LWL12 long
PPT12	15	IKO LWL15
	25	IKO LWL15 long
PPT16	20	IKO LWL20
	30	IKO LWL20 long

Pre-load:Zero or slightly pre-loaded

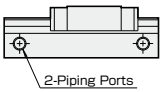
STROKE ADJUSTMENT RANGE

Model	Stroke	Metal Stopper		Rubber Stopper		Shock Absorber
		QP	QR	QS	QT	QM
PPT6Y	5	—	−4mm on both sides	—	—	—
	10	—	−4mm on both sides	—	—	—
PPT6M	5	−5mm on single side	—	−5mm on single side	—	—
	10	−5mm on single side	—	−5mm on single side	—	—
PPT6	5	−5mm on single side	—	−5mm on single side	—	—
	10	−5mm on single side	—	−5mm on single side	—	—
PPT8	5 ※	−5mm on single side	—	−5mm on single side	—	—
	10	—	−5mm on both sides	—	−5mm on both sides	−10mm on both sides
	20	—	−5mm on both sides	—	−5mm on both sides	−8mm on both sides
PPT10	5 ※	−5mm on single side	—	−5mm on single side	—	—
	10	—	−6mm on both sides	—	−6mm on both sides	−10mm on both sides
	20	—	−7mm on both sides	—	−7mm on both sides	−18mm on both sides
PPT12	15	—	−5mm on both sides	—	−5mm on both sides	−12mm on both sides
	25	—	−5mm on both sides	—	−5mm on both sides	−17mm on both sides
PPT16	20	—	−10mm on both sides	—	−10mm on both sides	−20mm on both sides
	30	—	−10mm on both sides	—	−10mm on both sides	−30mm on both sides

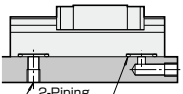
※Note: QN is the only code for PPT8-5 and PPT10-5 with single side metal stopper.

PIPING

TP	Side Ported	PP	Base Mounted	LP	Axial Ported

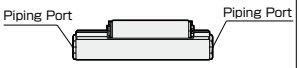


Install the air fittings to the ports directly.



Attachment :Two O-ring
By arranging the base, the air fittings can be mounted anywhere on it.
The surface roughness of the base for O-ring should be Rz6.3 at the maximum.

Only PPT6Y



Install the air fittings directly to the piping ports on the body both-ends cover.

NOT available to shift the port position each other.
Only PPT6Y, it's available to convert from PP, TP to LP.) ☞see page 54

OPTIONAL PARTS CODES(PPT6Y)

Name

PARTS CODE
Note
PARTS CODE
Note
Content

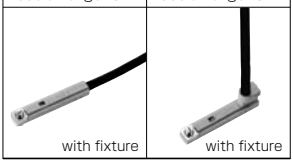
Switch Fixture

BF(PPT)
Screw, Nut
For PPT6Y

Please note dimention is different with PPT8-16 swith fixture of BE (PPT)

Reed Switch(2 Wires, with Indicator Light)

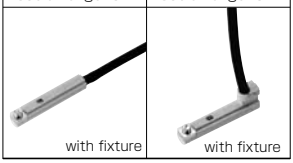
Straight Outlet Cable	Angle Outlet Cable
RB1(PPT6Y)	RC1(PPT6Y)
Cable Length:1m	Cable Length:1m
RB1LA(PPT6Y)	RC1LA(PPT6Y)
Cable Length:3m	Cable Length:3m



with fixture with fixture

Reed Switch(2 Wires, without Indicator Light)

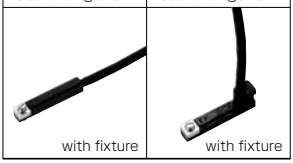
Straight Outlet Cable	Angle Outlet Cable
RB2(PPT6Y)	RC2(PPT6Y)
Cable Length:1m	Cable Length:1m
RB2LA(PPT6Y)	RC2LA(PPT6Y)
Cable Length:3m	Cable Length:3m



with fixture with fixture

Solid State Switch(2 Wires, with Indicator Light)

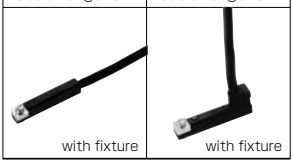
Straight Outlet Cable	Angle Outlet Cable
RB4(PPT6Y)	RC4(PPT6Y)
Cable Length:1m	Cable Length:1m
RB4LA(PPT6Y)	RC4LA(PPT6Y)
Cable Length:3m	Cable Length:3m



with fixture with fixture

Solid State Switch(3 Wires, with Indicator Light)

Straight Outlet Cable	Angle Outlet Cable
RB5(PPT6Y)	RC5(PPT6Y)
Cable Length:1m	Cable Length:1m
RB5LA(PPT6Y)	RC5LA(PPT6Y)
Cable Length:3m	Cable Length:3m



with fixture with fixture

PPT

PICO TABLE

Repair Parts Kit

HP(PPT6Y)
For PPT6Y
For details ☞page 50

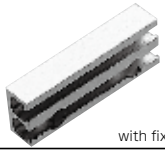
O-ring for Base Mounted

HS(PPT6Y)
For PPT6Y
CSφ0.8, IDφ4.4

10 O-rings

Switch Rail

RJ(PPT6Y−5)
RJ(PPT6Y−10)



with fixing bolts

Magnet

RK(PPT6Y)
For PPT6Y Before mounting, apply anaerodic adhesive to the screws.

with M1.6 mounting screws

Cover Kit(For LP)

LP(PPT6Y)
For PPT6Y

Modification of piping type
☞page 54

Stroke Adjuster(Both Sides Metal Stopper)

QR(PPT6Y)
For PPT6Y

with fixing bolts, pin

Adjuster Bolt

Model	PARTS CODE
For PPT6Y−5	AJ(M3−12)
For PPT6Y−10	

with nut

OPTIONAL PARTS CODES(PPT8,10,12,16)

Name	Switch Fixture
PARTS CODE Note PARTS CODE Note	BE(PPT) Screw, Nut For PPT8, 10, 12, 16
Content	

Reed Switch(2 Wires, with Indicator Light)

Straight Outlet Cable	Angle Outlet Cable
RB1(PPT) Cable Length:1m RB1LA(PPT) Cable Length:3m	RC1(PPT) Cable Length:1m RC1LA(PPT) Cable Length:3m
 with fixture	 with fixture

Reed Switch(2 Wires, without Indicator Light)

Straight Outlet Cable	Angle Outlet Cable
RB2(PPT) Cable Length:1m RB2LA(PPT) Cable Length:3m	RC2(PPT) Cable Length:1m RC2LA(PPT) Cable Length:3m
 with fixture	 with fixture

●RB,RC Switch

Conventional RG1,RG2 switches can be replaced to RB,RC switch

Comparison with old type

Old Type	Equivalent Current Type
RG1	RB1, RC1
	RB2, RC2
RG2	RB4, RC4
	RB5, RC5

Solid State Switch(2 Wires, with Indicator Light)

Straight Outlet Cable	Angle Outlet Cable
RB4(PPT) Cable Length:1m RB4LA(PPT) Cable Length:3m	RC4(PPT) Cable Length:1m RC4LA(PPT) Cable Length:3m
 with fixture	 with fixture

Solid State Switch(3 Wires, with Indicator Light)

Straight Outlet Cable	Angle Outlet Cable
RB5(PPT) Cable Length:1m RB5LA(PPT) Cable Length:3m	RC5(PPT) Cable Length:1m RC5LA(PPT) Cable Length:3m
 with fixture	 with fixture

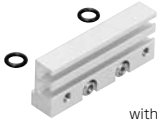
Switch Rail (For PPT8-5, 10-5)

RJ(PPT−A8−5−B)

RJ(PPT−A10−5−B)

A : SD or GT, B : TP or PP
Example : For PPTS-SD8-5-TP
RJ (PPT−SD8−5−TP)

PPT−SD8(10)−5−TP



with fixing bolts

PPT−SD8(10)−5−PP
PPT−GT8(10)−5−TP
PPT−GT8(10)−5−PP

with fixing bolts

Switch Rail

RJ(PPT(Bore size)−(Stroke))

Example : For PPT10 with 20 stroke,
RJ (PPT10−20)
Note : RJ can be selected for
PPT8,10,12,16

with fixing bolts

Magnet

RK(PPT8)	RK(PPT)
For PPT8 Before mounting, apply anaerodic adhesive to the screws.	For PPT10,12,16 Before mounting, apply anaerodic adhesive to the screws.
 with M1.6 mounting screws	 with M2 mounting screws

OPTIONAL PARTS CODES(PPT6M, 6, 8, 10, 12, 16)

Adjuster Bolt

Object	PARTS CODE
For PPT6M− 5	AJ(M4−20)
For PPT6M−10	AJ(M4−25)
For PPT6 − 5	AJ(M5−22)
For PPT6 −10	AJ(M5−30)
For PPT8 − 5	AJ(M5−16)
For PPT8 −10	
For PPT8 −20	
For PPT10− 5	
For PPT10−10	
For PPT10−20	AJ(M5−22)
For PPT12−15	AJ(M6−18)
For PPT12−25	AJ(M6−22)
For PPT16−20	AJ(M8−25)
For PPT16−30	

with nut

Adjuster Bolt with Rubber

Object	PARTS CODE
For PPT6M− 5	AR(M4−20)
For PPT6M−10	AR(M4−25)
For PPT6 − 5	AR(M5−22)
For PPT6 −10	AR(M5−30)
For PPT8 − 5	AR(M5−16)
For PPT8 −10	
For PPT8 −20	
For PPT10− 5	
For PPT10−10	
For PPT10−20	AR(M5−22)
For PPT12−15	AR(M6−18)
For PPT12−25	AR(M6−22)
For PPT16−20	AR(M8−25)
For PPT16−30	

with nut

Shock Absorber

ABK8	ABK10
For PPT 8 For PPT10 For PPT12	For PPT16
M8×0.75	M10×1
	
with nut	with nut

●Shock Absorber is converted to new type.
●It can be replaced to conventional shock absorber.
●Length of ABK10 is 8mm longer than ABS10.

Lock Nut for Adjustment Bolt

Object	PARTS CODE
M3(M3×0.5)	NTA(M3)
M4(M4×0.7)	NTA(M4)
M5(M5×0.8)	NTA(M5)
M6 (M6×1)	NTA(M6)
M8(M8×1.25)	NTA(M8)

●Common use for Adjustment Bolt and Rubber Adjustment Bolt.

Lock Nut for Shock ASbsorbar

Object	PARTS CODE
ABK8(M8×0.75)	NTS(M8)
ABK10(M10×1)	NTS(M10)

Repair Parts Kit

HP(PPT □)
Fill in □as bore size.
For details ☞page 51

Plug

BS−M5	BR−M5
with gasket	Coat BR-M5 with seal tapes or sealing liquid when using it.
	

O-ring for Base Mounted

HS(PPT6M)	HS(PPT)
For PPT6M	For PPT6,8,10,12 PPT16
CSφ0.8、IDφ8.3	CSφ1、IDφ10
	
10 O-rings	10 O-rings

OPTIONAL PARTS CODES(PPT8, 10, 12, 16)

Stroke Adjustment (Both Sides Metal Stopper)
For PPT8,10,12

QR (PPT (Bore Size) – (Stroke))

Example For PPT10 with 20 stroke.
QR(PPT10–20)
Before mounting, apply an anaerodic adhesive to the bolt .

with fixing bolts

Stroke Adjustment(Both Sides Rubber Stopper)
For PPT8,10,12

QT (PPT (Bore Size) – (Stroke))

Example For PPT10 with 20 stroke.
QT(PPT10–20)
Before mounting, apply an anaerodic adhesive to the bolt .

with fixing bolts

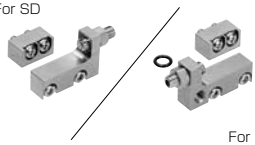
Stroke Adjustment(Single Side Metal Stopper)
For PPT8-5, 10-5

QN(PPT-□8-5)

QN(PPT-□10-5)

Fill in □ as SD or GT
Before mounting, apply an anaerodic adhesive to the bolt.

For SD



For GT

with fixing bolts

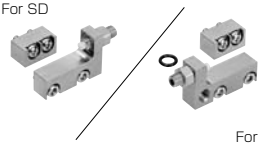
Stroke Adjustment(Single Side Rubber Stopper)
For PPT8-5, 10-5

QS(PPT-□8-5)

QS(PPT-□10-5)

Fill in □ as SD or GT
Before mounting, apply an anaerodic adhesive to the bolt.

For SD



For GT

with fixing bolts

Stroke Adjustment(Metal Stopper)
For PPT16

QR(PPT16)

Before mounting, apply an anaerodic adhesive to the bolt.

with fixing bolts

Stroke Adjustment(Rubber Stopper)
For PPT16

QT(PPT16)

Before mounting, apply an anaerodic adhesive to the bolt.

with fixing bolts

Stroke Adjustment(Shock Absorber)
For PPT10,12

QM(PPT(Bore Size))

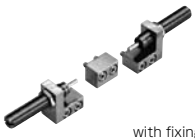
Example : For PPT10
QM(PPT10)
Before mounting, apply an anaerodic adhesive to the bolt.

with fixing bolts

Stroke Adjustment(Shock Absorber)
For PPT8,16

QM(PPT(Bore Size))

Example : For PPT8
QM(PPT8)
Before mounting, apply an anaerodic adhesive to the bolt.



with fixing bolts

MASS OF PPT

Unit:g

Model	Basic Mass	Additional Mass for Magnet and Switch Rail (PPTS)	Additional Mass for the Stroke Adjustment				
			Single Side Metal Stopper QP	Both Sides Metal Stopper QR	Single Side Rubber Stopper QS	Both Sides Rubber Stopper QT	Both Sides Shock Absorber QM
PPT6Y− 5	43	5	—	6	—	—	—
PPT6Y−10	58	6	—	6	—	—	—
PPT6M− 5	48	—	8	—	8	—	—
PPT6M−10	58	—	8	—	8	—	—
PPT6 − 5	80	—	10	—	10	—	—
PPT6 −10	100	—	10	—	10	—	—
PPT8 − 5	85	10	30 (QN)	—	30	—	—
PPT8 −10	100	10	—	35	—	35	65
PPT8 −20	160	15	—	45	—	45	65
PPT10− 5	120	15	30 (QN)	—	30	—	—
PPT10−10	135	15	—	40	—	40	70
PPT10−20	210	20	—	60	—	60	70
PPT12−15	215	15	—	70	—	70	90
PPT12−25	320	25	—	90	—	90	90
PPT16−20	445	15	—	100	—	100	145
PPT16−30	610	20	—	100	—	100	145

Note: The same mass for SD, GT, TP, PP, LP

MASS OF SWITCH

Unit:g

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

METHOD TO CALCULATE THE MASS

Ex. PPTS-SD10-20-PPQM-RC52LA

Basic Mass·····210g
Magnet, Switch Rail·····20g
Shock Absorber·····70g
Switch·····35×2=70g

210+20+70+35×2=370g

THEORETICAL THRUST

Unit:N

Bore Size (mm)	Operating Pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
φ6	5.7	8.5	11	14	17	20
φ8	10	15	20	25	30	35
φ10	16	24	31	39	47	55
φ12	23	34	45	57	68	79
φ16	40	60	80	100	120	140

1MPa=10.2kgf/㎠
1N=0.102kgf

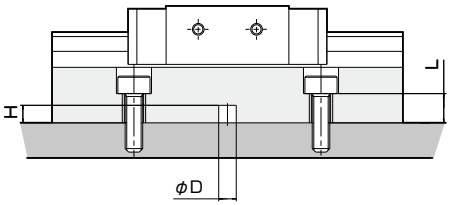
OPTION COMBINATION TABLE

Model	With Magnet, Switch Rail	Basic	Symmetric	Piping			Stroke Adjustment					
				Side	Base	Axial	Metal Stopper			Rubber Stopper		Absorber
	S	SD	GT	TP	PP	LP	QP	QN	QR	QS	QT	QM
PPT6Y	●	×	●	●	●	●	×	×	●	×	×	×
PPT6M	×	●	×	●	●	×	●	×	×	●	×	×
PPT6	×	●	×	●	●	×	●	×	×	●	×	×
PPT8	●	●	●	●	●	×	×	●N1	●N1	●N1	●N1	●N2
PPT10	●	●	●	●	●	×	×	●N1	●N1	●N1	●N1	●N2
PPT12	●	●	●	●	●	×	×	×	●	×	●	●N2
PPT16	●	●N3	×	●	●	×	×	×	●	×	●	●

N1: QN and QS are only 5 strokes.
N2: The stock abrorber is NOT available for 5 strokes and the symmetric (GT).
N3: In PPT16 case, possible to convert from SD to GT by changing plugs position. ☞53 Page

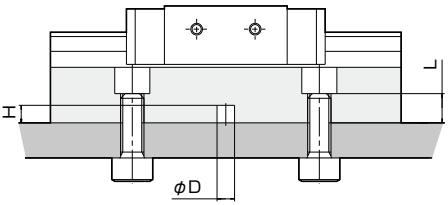
BODY INSTALLATION

Top Mounting(Thru Hole used)



Model	Bolt Size	Thru Hole Length L(mm)	Fastening. Torque N·m	Pin Holes for Positioning ϕD×H(mm)
PPT6Y	M2.5	6.7	0.57	$\phi 3^{+0.06}_{+0.01}$ depth2
PPT6M	M2.5	3.5	0.57	$\phi 3^{+0.05}_{0}$ depth3
PPT6	M3	4.5	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT8	M3	5	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT10	M3	5	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT12	M4	4.5	2.5	$\phi 3^{+0.05}_{0}$ depth3
PPT16	M5	6	5.1	$\phi 4^{+0.05}_{0}$ depth4

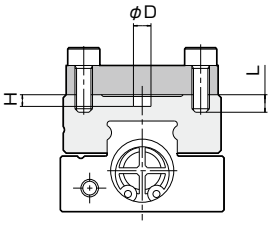
Bottom Mounting(Body Tap)



Model	Bolt Size	Screw Depth L(mm)	Fastening. Torque N·m	Pin Holes for Positioning ϕD×H(mm)
PPT6Y	M3×0.5	6.7	1.1	$\phi 3^{+0.06}_{+0.01}$ depth2
PPT6M	M3×0.5	3.5	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT6	M4×0.7	4.5	2.5	$\phi 3^{+0.05}_{0}$ depth3
PPT8	M4×0.7	5	2.5	$\phi 3^{+0.05}_{0}$ depth3
PPT10	M4×0.7	5	2.5	$\phi 3^{+0.05}_{0}$ depth3
PPT12	M5×0.8	4.5	5.1	$\phi 3^{+0.05}_{0}$ depth3
PPT16	M6×1	6	8.6	$\phi 4^{+0.05}_{0}$ depth4

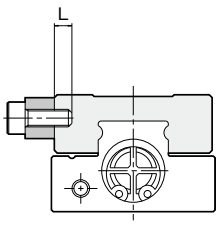
MOUNTING ON TABLE

Top Mounting



Model	Bolt Size	Screw Depth L(mm)	Fastening. Torque N·m	Pin Holes for Positioning ϕD×H(mm)
PPT6Y	M2.5×0.45	3	0.57	$\phi 3^{+0.06}_{+0.01}$ depth2
PPT6M	M2×0.4	2.5	0.26	$\phi 3^{+0.05}_{0}$ depth2
PPT6	M3×0.5	3	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT8	M3×0.5	3	1.1	$\phi 3^{+0.05}_{0}$ depth3
PPT10	M3×0.5	3	1.1	$\phi 3^{+0.05}_{0}$ depth2
PPT12	M3×0.5	4	1.1	$\phi 3^{+0.05}_{0}$ depth2.5
PPT16	M4×0.7	6	2.5	$\phi 4^{+0.05}_{0}$ depth4

Side Mounting

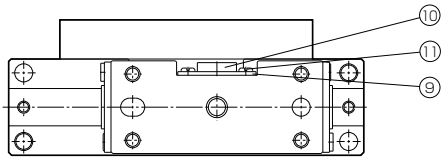


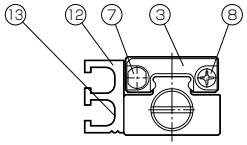
Model	Bolt Size	Screw Depth L(mm)	Fastening. Torque N·m
PPT6Y	—	—	—
PPT6M	—	—	—
PPT6	—	—	—
PPT8	M3×0.5	3	1.1
PPT10	M3×0.5	3	1.1
PPT12	M3×0.5	4	1.1
PPT16	M4×0.7	7	2.5

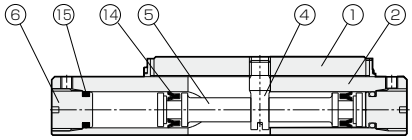
Basic Type,PPTF with stroke adjustment type,
PPTH,PPTG are not side mounting type.

STRUCTURE AND PRINCIPAL COMPONENTS

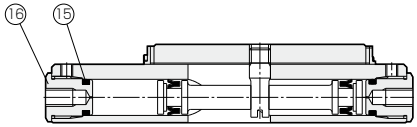
■ PPT6Y



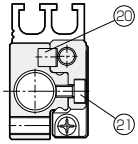




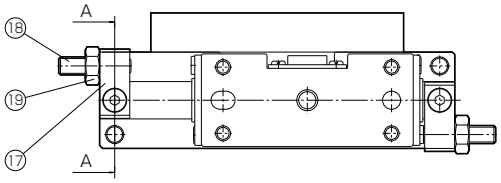
LP(Axial Ported)



With Stroke Adjustment



A–A



PRINCIPAL COMPONENTS

No.	Name	Material	Remarks	No.	Name	Material	Remarks
1	Guide Table	Stainless Steel	Heat Treatment	8	Screw	Stainless Steel	
2	Body	Stainless Steel	Heat Treatment	9	Shield	Carbon Steel	Nickel Plating
3	Dust Seal	NBR, Stainless Steel		10	Magnet	Magnetic Material	
4	Center Pin	Stainless Steel		11	Screw	Stainless Steel	
5	Piston	Synthetic Resin		12	Switch Rail	Aluminum Alloy	
6	End Cover	Stainless Steel		13	Screw	Structural Alloy Steel	Nickel Plating
7	Stopper Receiver	Tool Steel(Heat Treatment)	Electroless Nickel Plating				

REPAIR PARTS

No.	Name	Material	Qty	Remarks	No.	Name	Material	Qty	Remarks
14	Piston Seal	NBR	2		15	O-ring	NBR	2	

COVER KIT(For LP)

No.	Name	Material	Qty	Remarks	No.	Name	Material	Qty	Remarks
15	O-ring	NBR	2		16	End Cover(For LP)	Stainless Steel	2	

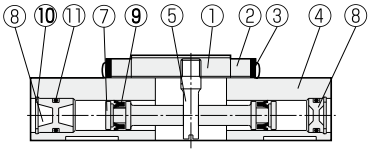
Additional parts : Two plugs (Steel, Nickel plating)

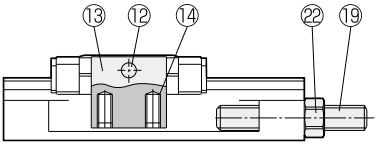
STROKE ADJUSTMENT

No.	Name	Material	Qty	Remarks	No.	Name	Material	Qty	Remarks
17	Stopper Block	Carbon Steel	2	Electroless Nickel Plating	20	Pin	Bearing Steel	2	
18	Adjuster Bolt	Steel(Heat Treatment)	2	Nickel Plating	21	Bolt	Structural Alloy Steel	2	Nickel Plating
19	Nut	Carbon Steel	2	Nickel Plating					

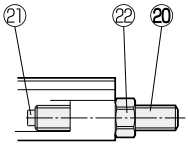
STRUCTURE AND PRINCIPAL COMPONENTS

■PPT6M, 6



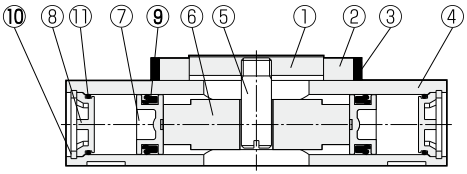


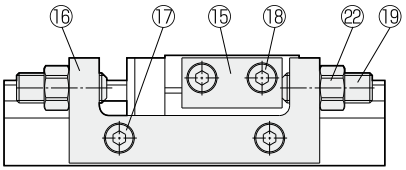
Metal Stopper



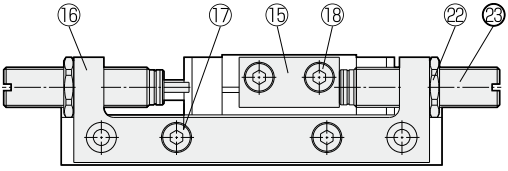
Rubber Stopper

■PPT8, 10, 12, 16

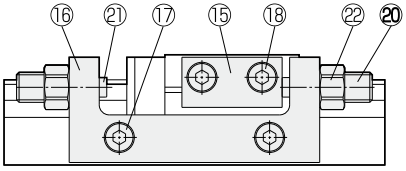




Metal Stopper



Shock Absorber



Rubber Stopper

PRINCIPAL COMPONENTS

No.	Name	Material	Remarks	No.	Name	Material	Remarks
1	Guide Table	Stainless Steel	Heat Treatment	5	Center Pin	Stainless Steel	
2	Side Plate	Synthetic Resin		6	Center Piston	Synthetic Resin	Only PPT8,10,12,16
3	Dust Seal	NBR		7	Piston	Synthetic Resin	
4	Body	Stainless Steel	Heat Treatment	8	End Cover	Synthetic Resin	

NOTE:PPT6M,PPT6,PPT8-5,PPT10-6 are bisection piston.

REPAIR PARTS

No.	Name	Material	Qty	Remarks	No.	Name	Material	Qty	Remarks
9	Piston Seal	NBR	2		11	O-ring	NBR	2	
10	Circlip	Steel	2	Nickel plating					

NOTE: Packing of PPT10,12 is not exchanged if it's before than below item No.

●PPT10−10···itemNo.7422 ●PPT12−15···itemNo.7508
●PPT10−20···itemNo.7509 ●PPT12−25···itemNo.7408

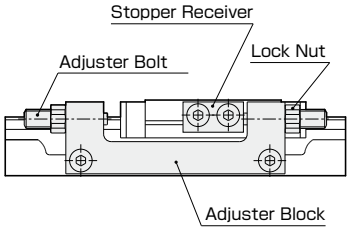
STROKE ADJUSTMENT

No.	Name	Material	Remarks	No.	Name	Material	Remarks
12	Pin	Stainless Steel	Heat Treatment	18	Bolt	Steel	Nickel Plating
13	Stopper Receiver	Steel (Heat Treatment)	Electroless Nickel Plating	19	Adjuster Bolt	Steel (Heat Treatment)	Nickel Plating
14	Setscrew	Steel	Nickel Plating	20	Adjuster Bolt(For Rubber)	Stainless Steel	See Note
15	Stopper Receiver	Tool Stee(L Heat Treatment)	Electroless Nickel Plating	21	Cushioning Rubber	Urethane Rubber	
16	Adjuster Block	Carbon Steel	Electroless Nickel Plating	22	Nut	Carbon Steel	Electroless Nickel Plating
17	Bolt	Steel	Nickel Plating	23	Shock Absorber	Copper Alloy Carbon Steel(PPT16 only)	Electroless Nickel Plating

Note :PPT6M will be steel (nickel plated).

ADJUSTMENT OF STROKE AND REPLACEMENT OF STOPPER

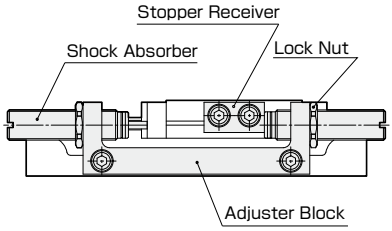
■Metal Stopper and Rubber Stopper



●Adjustment of Stroke
1. Loosen the lock nut.
2. Adjust the stroke by turning adjuster bolt.
3. Tighten lock nut to fix adjuster bolt.

●Replacement of Stopper
1. Loosen the lock nut.
2. Turn out the adjuster bolt from adjuster block.
3. Turn in new adjuster bolt and adjust stroke.
4. Tighten lock nut to fix adjuster bolt.

■Shock Absorber with Metal Stopper



●Adjustment of Stroke with Metal Stopper
1. Loosen the lock nut.
2. Adjust the stroke by turning shock absorber.
3. Tighten lock nut to fix shock absorber.

●Replacement Shock Absorber
1. Loosen lock nut.
2. Turn out shock absorber from adjuster block.
3. Turn in new shock absorber and adjust stroke.
4. Tighten lock nut to fix shock absorber.

Refer to torque below to tighten the lock nut.

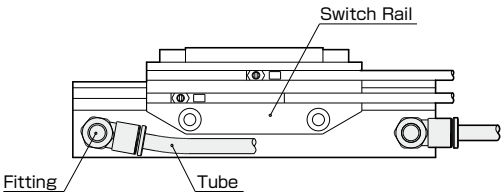
Model	Lock Nut	Tightening Torque
PPT8,10,12	M8×0.75	3.9N·m
PPT16	M10×1.0	7.8N·m

⚠ Caution

①In case that abnormal noise of collision or vibration happens from shock absorber or rubber stopper, that seems the sign of replacement. To keep it using without replacement may cause breakdown.
②In use metal stoppers, rust may occur on the face of collision. It doesn't matter the rust occurs, but please clean the face up periodically.

ONE WAY PIPING(only PPT16)

At PPT16, the tube can go under the switch rail. Therefore tube outlets can be get from only one direction even if the fitting are mounted on the switch rail side.

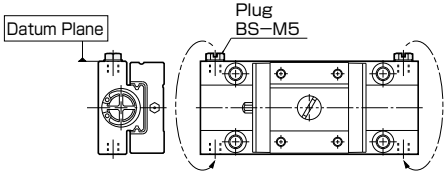


MODIFICATION OF PORT POSITION(only PPT16)

■Side Ported(TP)

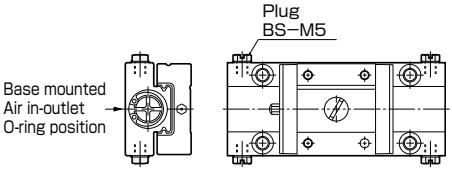
Only PPT16 has ports on both sides of the body.

When TP is delivered, the plugs(BS-M5)are attached to the ports on the datum plane side of the body. A gasket is provided on the washer face of BS-M5. So, BS-M5 can be easily mounted and removed with a wrench or a screw driver. You can freely change the position in according to your application such as symmetrical mounting.



■Base Mounted(PP)

In case of PP of PPT16, the plug BS-M5 with gasket on the washer face is fitted on both sides of the body. This type can be used as TP by sealing air with O-ring between the bottom of body and mounting base and removing the plug.
It is recommended to purchase PP type, if TP or PP will not be decided for application.



■To Avoid Extrusion of the Plug Head from Body

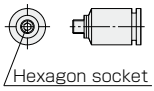
Plug BR-M5(hexagon socket set screw) is recommended.
In this case, apply sealing tape or sealing adhesive on the thread portion.

INSTALLATION OF THE FITTING AND SPEED CONTROLLER(only PPT6Y, PPT6M)

About PPT6Y and PPT6M, the dimension from the bottom of body to the port is very small because of saving height.
Therefore, the kind of one-touch fitting, speed controller and installing method of actuator are restricted.

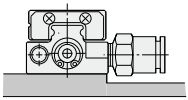
■One-touch fitting that can be used for PPT6Y and PPT6M.

The available fittings are ones that its sectional shape is round and the diameter is ϕ8 or less and has hexagon socket inside of tube inlet for installation.
Be sure to confirm the dimension of fitting before using.

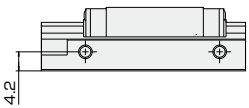


NITTA·····AC4−M3A−M
NIHON PISCO···POC4−M3M

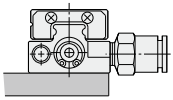
Even if other fittings will be used, as like the hexagonal fitting or speed controller, it can be used by shortening the length of mounting base, or arranging escape notch.



When escape notch is designed in mounting base



Dimension from the bottom of body to port

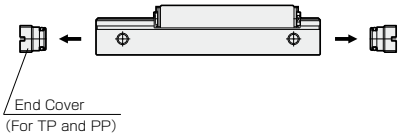


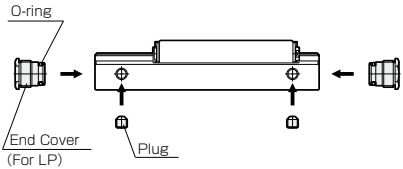
When mounting base is shortened to avoid the interference with each other.

CHANGE OF PIPING(only PPT6Y)

■Change from TP (side ported) to LP (axial ported)

TP can be changed to LP by LP cover kits(LP(PPT6Y)).
Details of optional parts ☞page 44





Removing

Step	Notes
1.Turn the end cover with a minus driver etc. and remove it.	Remove a cover after confirming that air pressure has not been applied and fully exhausted.

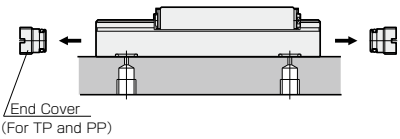
Assembly

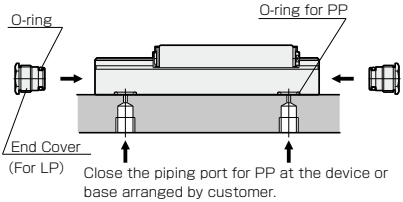
Step	Notes
1.Install O-ring to the end cover for LP, and screw it into the body. 2.Screw the plugs on which sealing such as anaerobic adhesive is applied into TP ports on the body.	Tighten the LP cover firmly so as not to loosen. Do not spread the adhesive on ports of the body, but spreading it on plugs only. Ensure that the adhesive does not enter the cylinder of the body. It might take some time for adhesive to dry.

■Change from PP (base mounted) to LP (Axial ported)

PP can be changed to LP by LP cover kits(LP(PPT6Y)).

Details of optional parts ☞page 44





Removing

Step	Notes
1.Turn the end cover with a minus driver etc. and remove it.	Remove a cover after confirming that air pressure has not been applied and fully exhausted.

Assembly

Step	Notes
1.Install O-ring to the end cover for LP, and screw it into the body. 2.Do not remove O-ring for PP in order to prevent air leakage from the bottom. Close the piping port used at PP.	Tighten the LP cover firmly so as not to loosen.

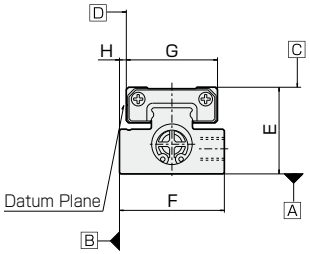
■The following change cannot be done.

TP ⇨✕⇦PP　LP ⇨✕⇦TP
PP ⇨✕⇦TP　LP ⇨✕⇦PP

ACCURACY

■Linear Bearing Accuracy

Basic (SD)

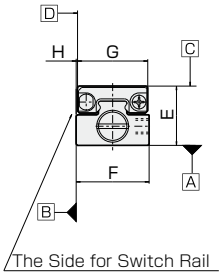


Unit:mm

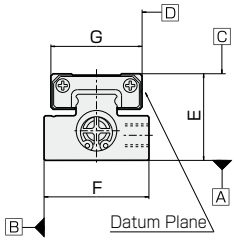
Model		PPT6M	PPT6	PPT8	PPT10	PPT12	PPT16
Parallelism	Plane C with Respect to Plane A	0.03			0.02		
	Plane D with Respect to Plane B	0.03			0.02		
Running Parallelism	Plane C with Respect to Plane A	0.005			0.004		0.003
	Plane D with Respect to Plane B	0.005			0.004		0.003
Tolerance of Dimension E		±0.05			±0.02		
Tolerance of Dimension F		0~−0.2			±0.2		
Tolerance of Dimension G		0~−0.05			±0.2		
Tolerance of Dimension H		±0.1			±0.025		

Symmetric(GT)

PPT6Y



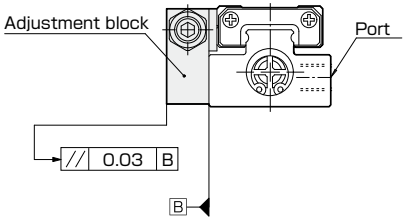
PPT8, 10, 12



Unit:mm

Model		PPT6Y	PPT8	PPT10	PPT12
Parallelism	Plane C with Respect to Plane A	0.04	0.04	0.03	
	Plane D with Respect to Plane B	0.04	0.04	0.03	
Running Parallelism	Plane C with Respect to Plane A	0.007	0.006	0.006	
	Plane D with Respect to Plane B	0.007	0.006	0.006	
Tolerance of Dimension E		±0.05	±0.05	±0.02	
Tolerance of Dimension F		0~−0.1	0~−0.2	±0.2	
Tolerance of Dimension G		0~−0.1	0~−0.05	±0.2	
Tolerance of Dimension H		±0.1	——	——	

■Parallelism of Adjustment Block (only SD)



In case of with stroke adjustment type, side plane of adjustment block can be used as datum plane for installation. "Parallelism 0.03mm"

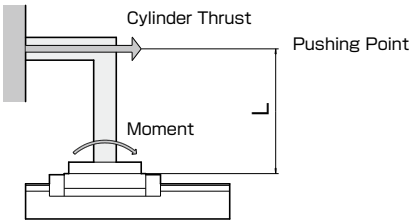
Use either the adjustment block or the body side as a datum plane in case of the split adjustment block type. Because there is some difference in thickness of the split type adjustment block, either one of adjustment blocks shall be used as the datum plane.

⚠ Caution

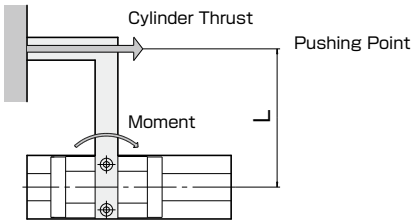
Moment by Thrust of Cylinder at Offset Pushing

As the following figure, if cylinder will push work or so at the offset point in the middle of stroke, a large moment will be generated by the thrust of cylinder itself.
Static moment rating ☞65 page

Pitching Moment



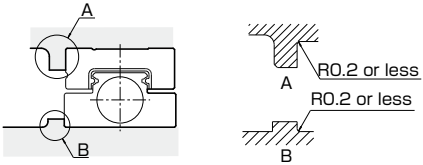
Yawing Moment



Mounting Surface Accuracy

①At the top, side of table and the bottom of body, the surfaces of PICO TABLE are ground up accurately. Stable and smooth movement highly accuracy can be obtained by proper installation to mounting surface machined high accurately. An irregular mounting surface or incorrect mounting may result in inaccurate movement, instability or poor service life.
Datum plane (body and guide table) ☞page 55

②It is recommended to make relief at the corner of mating reference mounting surfaces. Besides, corner radius shown in the following figure can also be used. If the corner profile is curved smoothly, compared to the chamfer profile of the body and guide table, it may not closely contact its reference surface.



③Check the reference mounting corner to an exact right angle between the mounting surface and the surface against which body or table is pressed. If the angle is not right-angled, they cannot contact the surface properly.

④When designing a reference surface, carefully examine the height and thickness of the section. If a reference section is too thin, precision may deteriorate, as a thin ridge lacks rigidity against lateral load due to the movement of the body or guide table and the force exerted by the lateral mounting bolts.

Rigidity of Mounting Base (Fixed Part)

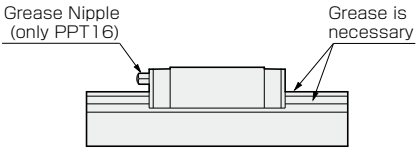
If the method of fixing the body and the rigidity of the mounting base are not correct, high rigidity and the high accuracy PICO TABLE has in kind could not be effective.
Consider it for design about also the rigidity of devices itself such as an attachment base.

Arranging Position of Shock Absorber

Pay attention to below about the position in the stroke end when mounted load mass will be larger than the one without shock absorber.
In order to stop the guide table, use stopper receiver and the metal on the top of shock absorber.
If the center pin in a table makes it stop in a body, by the mass of a loading thing is large, it causes breakdown.

Lubrication

Lithium soap grease is applied on ball rolling surfaces before dispatch the unit. According to operation, time and condition for use, grease would be deteriorated and this cause the bearing to shorten its life because of wear on rolling surfaces.
Although the grease feeding interval depends on the service conditions and environment, as a rule, feeding should be performed every 100km of travel under normal usage or one month. Feed on raceway of the body as for lithium soap grease after wiping off old grease completely.
The grease would be fed through the grease nipple for PPT16.
The chemical change and poor performance by feeding the different grease would cause defective operation and the breakdown.
Instead of grease, turbine oil can be used for lubrication.
Never lubricate spindle oil or machine oil because they give damage to the seals inside of the unit.



Feeling of Linear Guide Rolling

When the table is moved by hand without air pressure, discontinuous feeling of rolling balls on strange feeling of rolling resistance do not effect its performance.

Magnetization of Table and Body

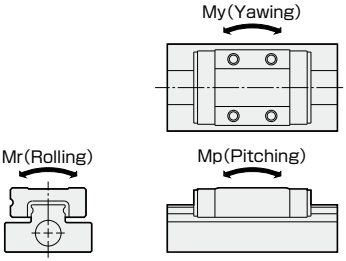
Martensite stainless steel, as material of table and body, must be magnetized easily by contacting magnet and magnetic thing. Once that steel is magnetized, it keeps this state.
Note that there is a possibility that the switch might not work correctly by this magnetization.

Pin Hole of Table and Body for Positioning

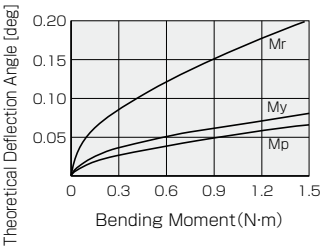
Excessive load or transformation of raceway due to press-fitting the pin into the pin hole would cause the breakdown. Moreover, to press-fit would cause the crack and damage because of hardness of material by heat treated at the pin hole part.
Confirm the clearance between pin and pin hole.

THEORETICAL DEFLECTION OF GUIDE TABLE BY MOMENT

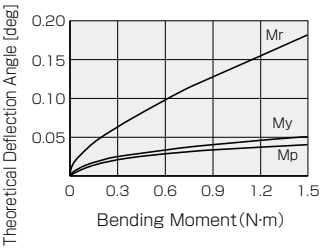
Linear bearings used for PPT are preloaded, however, the elastic deformation of balls and races may occur due to the moment by external force.
Graphs below show the theoretical deflection angle of the guide table in relation to each moment.



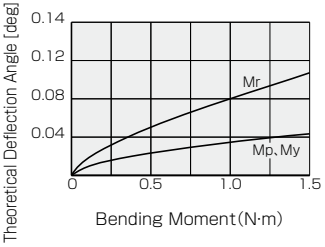
PPT6Y−5



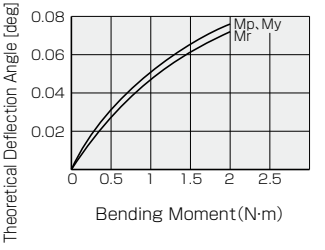
PPT6Y−10



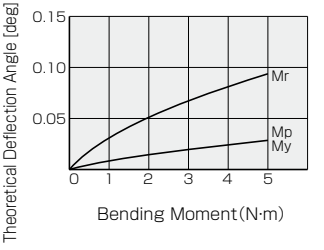
PPT6M−5, −10



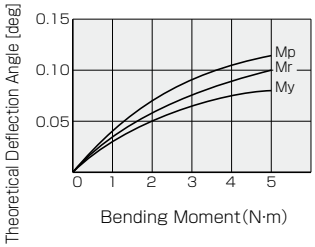
PPT6−5, 6−10, 8−5, 8−10



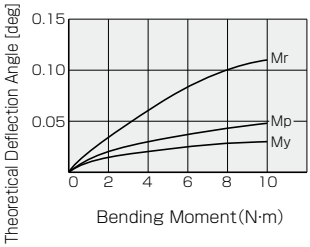
PPT8−20



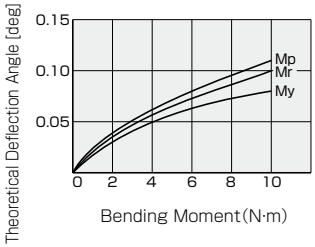
PPT10−5、10−10



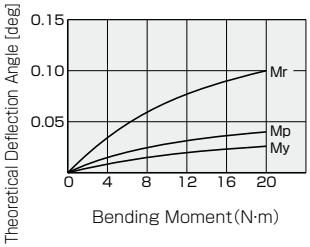
PPT10−20



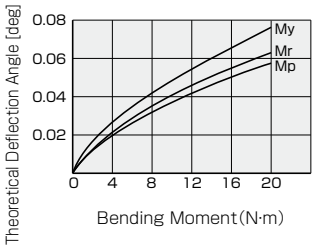
PPT12−15



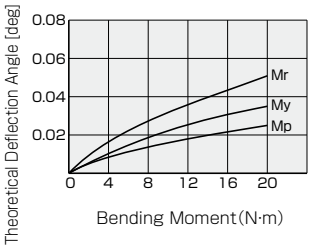
PPT12−25



PPT16−20



PPT16−30



⚠ Caution

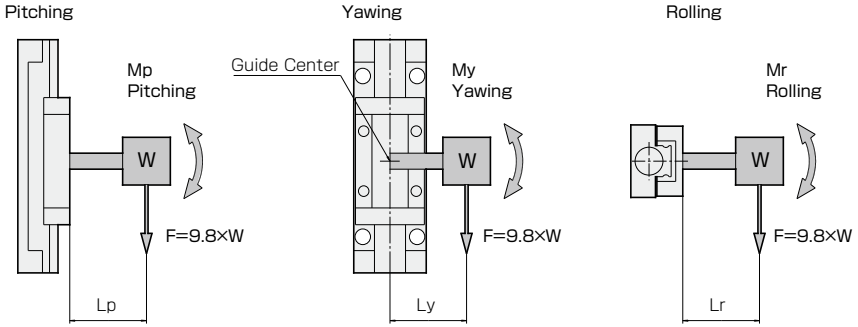
Before using this unit, check that the applied load is within the allowable load. Using out of allowable limit may cause bad influence for movement, accuracy and life. At the worst, the actuators would be broken.

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

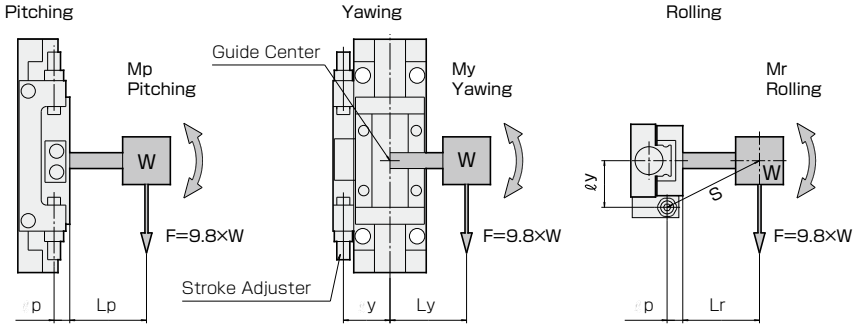
■Direction of Moment and Guide Center Line and/or Stopper or Stroke Adjuster

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

●Without Stroke Adjustment



●With Stroke Adjustment



Position of Stopper Bolt/Shock Absorber Unit: m

Model	Adjuster Bolt		Shock Absorber	
	ℓp	ℓy	ℓp	ℓy
PPT6Y	0.0035	0.0058	—	—
PPT6M	0.0098	0.0062	—	—
PPT6	0.0125	0.0075	—	—
PPT8	0.0045	0.0155	0.0065	0.0175
PPT10	0.0050	0.0180	0.0065	0.0200
PPT12	0.0065	0.0215	0.0065	0.0225
PPT16	0.0110	0.0265	0.0100	0.0280

W····· Mounted load mass(kg)
F····· Gravity applied on load(N)
Lp,Ly,Lr····· Distance between guide center line and center of gravity of mounted load(m)
ℓp, ℓy····· Distance between guide center line and stopper bolt/shock absorber(m)
S····· Distance between center of gravity of mounted load and stopper bolt /shock absorber(m)

■Allowable mounted load mass, Allowable mounted load moment, Allowable inertia mass, Shock absorber collision energy

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

①Allowable Load Mass

●Standard Type

Unit:kg

Model		PPT6Y	PPT6M	PPT6	PPT8	PPT10	PPT12	PPT16
Allowable Load Mass	None	0.2	0.2	0.3	0.3	0.8	1.2	2.0
	Metal Stopper(QP,QR)	0.1	0.1	0.15	0.25	0.4	0.6	1.0
	Rubber Stopper (QS,QT)	—	0.13	0.2	0.5(0.3)	0.8	1.2	2.0
	Shock Absorber (QM)	—	—	—	1.0	1.6	2.0	4.0

( ) is only for PPT8-5

●With Floating System / End Lock System

Unit:kg

Model	PPTF8 PPTH8 PPTG8	PPTF10 PPTH10 PPTG10	PPTF12 PPTH12 PPTG12	PPTF16 PPTH16 PPTG16
None Rubber Stopper Shock Absorber	0.3	0.8	1.2	2.0
Metal Stopper	0.25	0.4	0.6	1.0

No Shock Absorber with PPTG

⚠ Caution

When operating in the vertical direction, even if mounted load mass is within the allowable range, there might be some cases the thrust are not enough to move or to get the expected speed depending on supplied air pressure. Besides, there might be some cases the thrust are not enough to push the rod of the shock absorber to end. In this case, please arrange the load mass less than 20 % of theoretical thrust.
Theoretical thrust ☞page 48

②Allowable Mounted Load Moment

There is the formula below to calculate three moments by the gravity. Please confirm they are within the allowable moments in the table below.

(Mounted load moment)=(Gravity applied on load:F)×(Distance between guide center line and center of gravity of mounted load:L)
=9.8×(Mounted load mass:W)×(Distance between guide center line and center of gravity of mounted load:L)

(Gravity applied on load: F)=9.8×(Mounted load mass: W)

Pitching····· Mp(N·m)=9.8×W(kg)×Lp(m)
Yawning····· My(N·m)=9.8×W(kg)×Ly(m)
Rolling····· Mr(N·m)=9.8×W(kg)×Lr(m)

Allowable Mounted Load Moment

Model	Stroke(mm)	Allowable Mounted Load Moment N·m		
		Mp	My	Mr
PPT6Y	5	0.41	0.41	0.42
	10	0.71	0.71	0.53
PPT6M	5	0.62	0.62	0.67
	10			
PPT6	5	0.42	0.42	0.87
	10			
PPT8	5			
	10			
	20	1.7	1.7	1.8
PPT10	5	1.2	1.4	2.3
	10			
	20	2.8	3.1	3.3
PPT12	15	2.4	2.9	4.7
	25	6.5	7.7	7.3
PPT16	20	4.3	3.8	7.5
	30	7.5	6.6	9.6

Maximum allowable load moment of PPTF, PPTH, PPTG is same as Basic type.

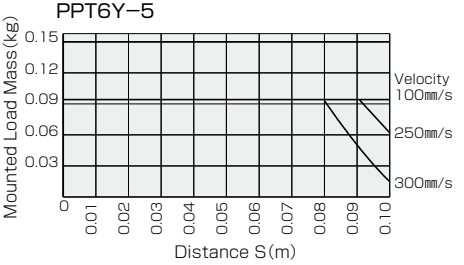
1N·m=0.102kgf·m

③Allowable Inertia Mass

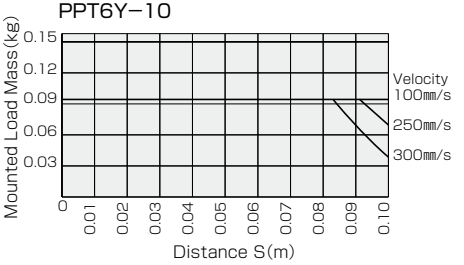
When a actuator stops at the end of its stroke, a force is generated due to the inertia of the load. The value of this force depends on various conditions like the shape of load, mounting ways and operating pressure. Therefore, it is very difficult to formulate the allowable value.
The graphs below show theoretically relation between "the velocity at the stroke end", "mounted load mass" and "the distance between the center of the gravity of load and stopper".
These graphs can be used as reference to the allowable values of the load.
S: The distance between the center of the gravity of load and stopper. Please refer to the figures of rolling in the page 61.

●Graphs of Allowable Inertia Mass

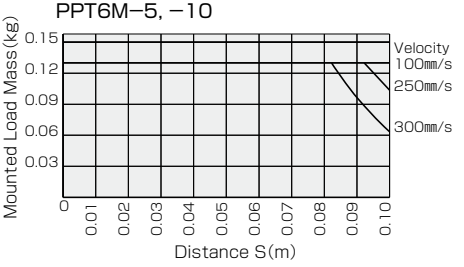
PPT6Y−5



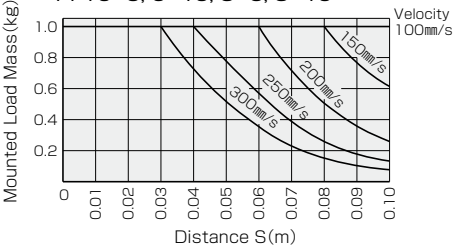
PPT6Y−10



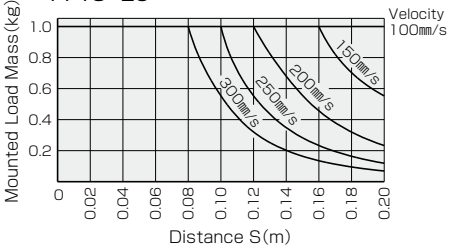
PPT6M−5, −10



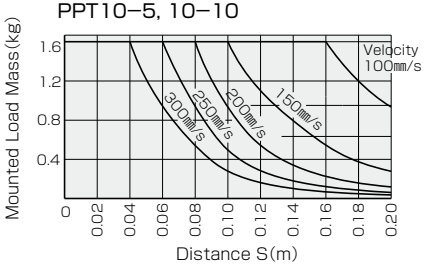
PPT6−5, 6−10, 8−5, 8−10



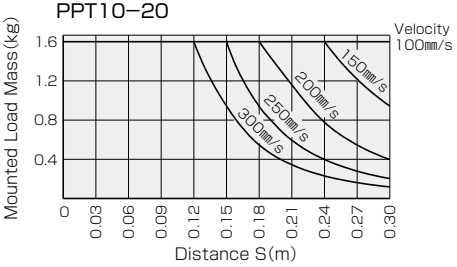
PPT8−20



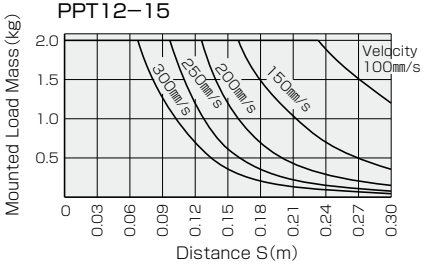
PPT10–5, 10–10



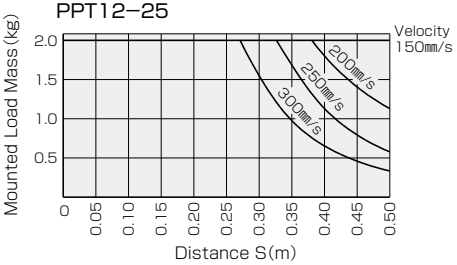
PPT10–20



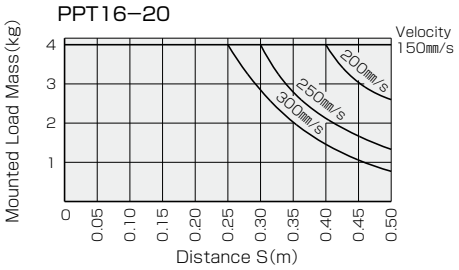
PPT12–15



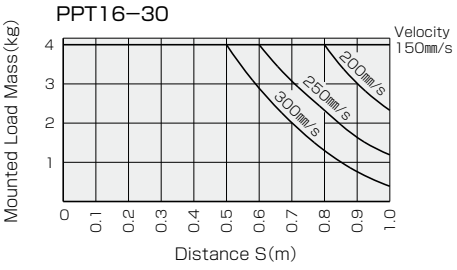
PPT12–25



PPT16–20



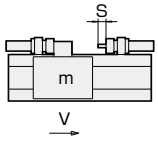
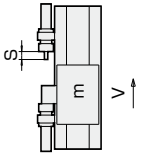
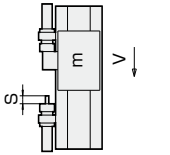
PPT16–30



⚠ Caution: Mounted load mass should not exceed the allowable mounted load specified for every option.

④Shock Absorber Collision Energy(For only QM Type)

The energy that the shock absorber of the stopper must absorb consists of three element: kinetic energy, energy of cylinder thrust and energy due to gravity.
The collision energy is the total of three.
See the shock absorber specifications and energy absorption graphs below. Use the product within the shock absorber specifications.

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

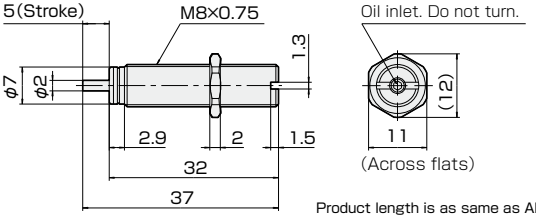
E : Collision Energy(J)
m: Colliding Mass(kg)
V : Collision Velocity(m/s)
F : Cylinder Thrust(N)
s : Shock Absorber Stroke(m)
g : Gravity Acceleration(9.8m/s^2)

SHOCK ABSORBER SPECIFICATIONS

Model	ABK8	ABK10
Max Energy Absorption	0.68J	3J
Stroke	5㎜	10㎜
Energy Absorption Per Minute	22.8J/min	60.8J/min
Max. Collision Velocity	1m/s	
Usage Frequency	60c.p.m or less	
Operating Temperature Range	−5～70℃	
Piston Rod Return Force	4.9N	
Applicable Model	PPT8, 10, 12	PPT16

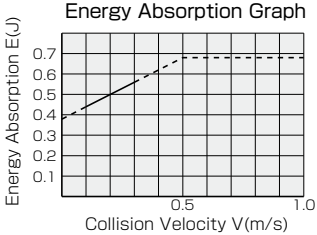
Shock absorber is changed to new type.
It can be installed to the product with convertional absorber.

MODEL: ABK8／For PPT8, 10, 12

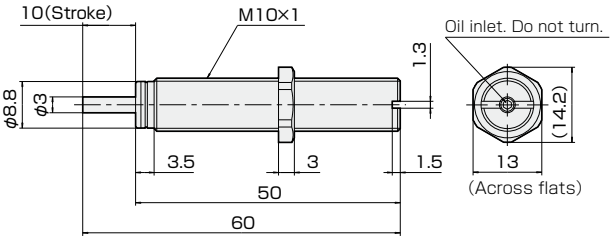


Product length is as same as ABS8

Energy Absorption Graph

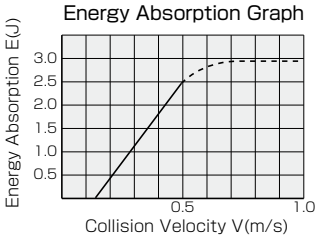


MODEL: ABK10／For PPT16



Product length is 8mm longer than ABS10.(Previous Model)

Energy Absorption Graph



■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.

①External Force Value (Basic Static Load Rating)
②External 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 CO, the static moment rating MpO, MyO and MrO 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 CO, MpO, MyO and MrO with corsidering about static safty factor, fs.

$Co \geqq fs \cdot P$

Co: basic static load rating N
P : static load N
fs : static safety factor

$Mp_O \geqq fs \cdot Mp_1$
$My_O \geqq fs \cdot My_1$
$Mr_O \geqq fs \cdot Mr_1$

Mp_O、My_O、Mr_O: Static moment rating N·m
Mp_1、My_1、Mr_1: Static moment N·m
fs: Static safety factor

STATIC SAFETY FACTOR fs

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

BASIC STATIC LOAD RATING, STATIC MOMENT RATING

Model	Stroke(㎜)	Basic Static Load Rating N	Static Moment Rating N·m		
			Mp_O	My_O	Mr_O
PPT6Y	5	1597	5.23	5.23	5.28
	10	2214	9.72	9.72	7.31
PPT6M	5	2318	7.62	7.62	8.43
	10				
PPT6	5	2260	5.1	5.1	10.4
	10				
PPT8	5				
	10				
	20	4810	19.7	19.7	20.9
PPT10	5	3630	12.7	14.7	24.5
	10				
	20	6370	35.3	42.2	42.2
PPT12	15	5880	25.5	30.4	49.0
	25	11080	83.3	99.0	92.9
PPT16	20	9410	55.0	46.0	96.0
	30	13330	106.0	89.0	136.0

PPTF, PPTH, PPTG are same Basic Static Load Rating, Static Moment with Standard Type.

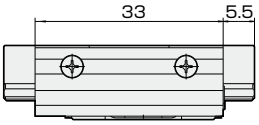
1N·m=0.102kgf·m
1N=0.102kgf

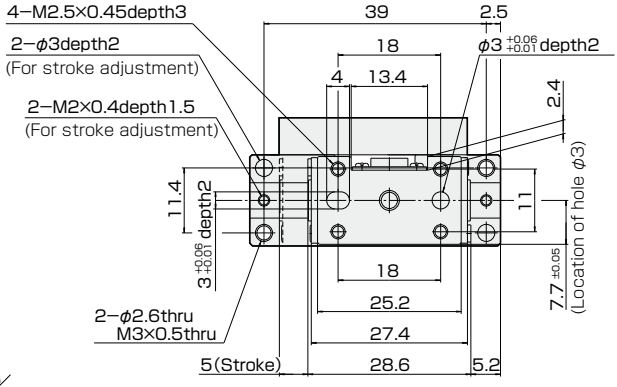
DIMENSIONS (mm) PPT6Y–5

PPTS–GT6Y–5– TP / PP

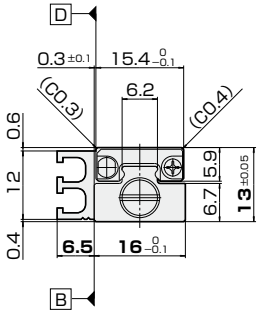
- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP……Side Ported
  - PP……Base Mounted

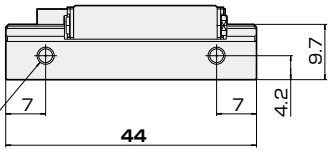
Caution: Installation of fitting and speed controllers
☞page 53



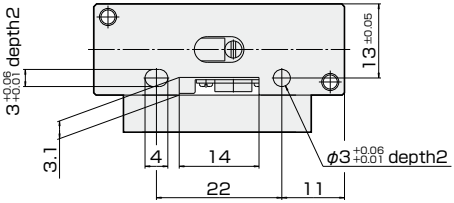


●TP(Side ported)

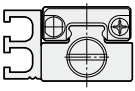


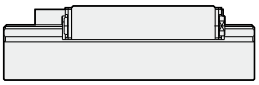


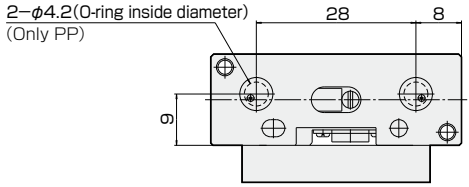
B D –Datum plane



●PP(Base mounted)



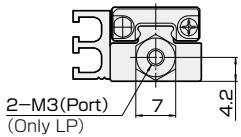


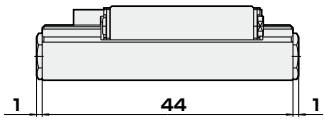


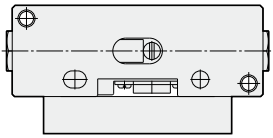
Axial Ported

PPT(S)−GT6Y−5−LP

LP:Axial Ported



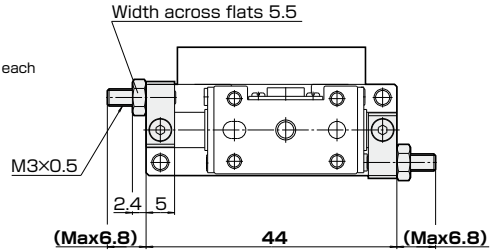


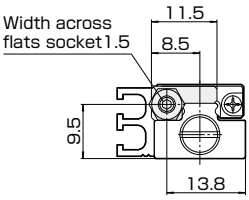


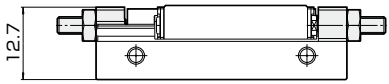
With Metal Stopper

PPT(S)−GT6Y−5−PP$\overset{TP}{\underset{LP}{}}$QR

QR:Metal Stopper
Stroke Adjustment Range: Both Sides 4mm each

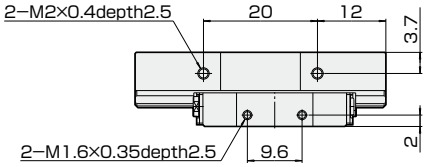






Without Magnet, Switch Rail

PPT−GT6Y−5−PP$\overset{TP}{\underset{LP}{}}$

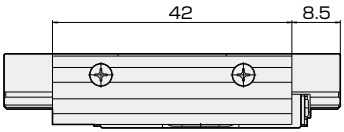


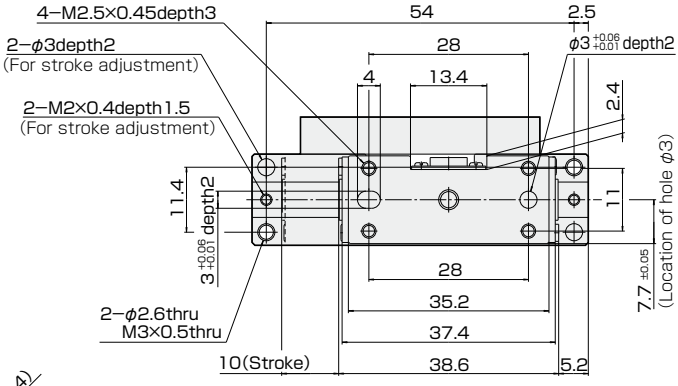
DIMENSIONS (mm) PPT6Y−10

PPTS−GT6Y−10−TP/PP

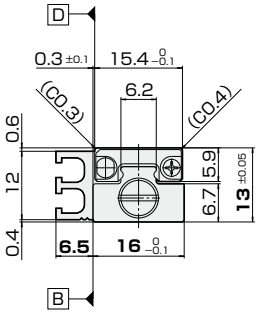
- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

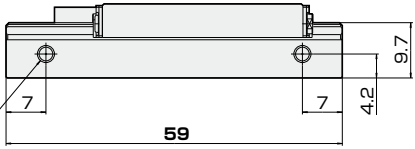
Caution: Installation of fitting and speed controllers
☞page 53



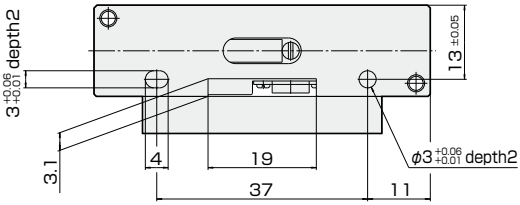


●TP(Side ported)

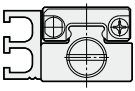


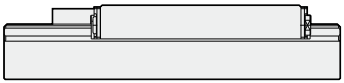


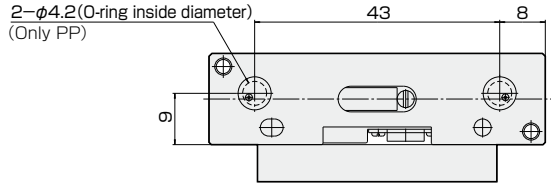
B D −Datum plane



●PP(Base mounted)



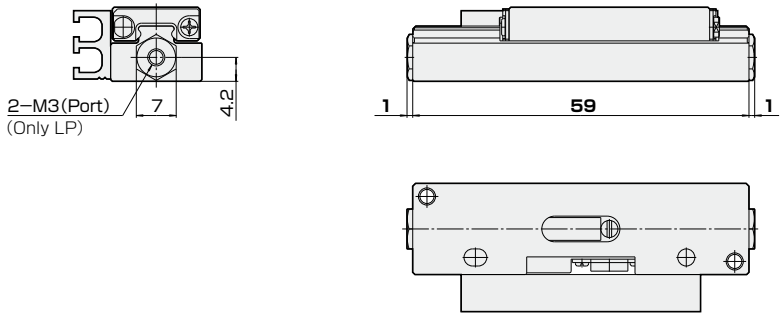




Axial Ported

PPT(S)−GT6Y−10−LP

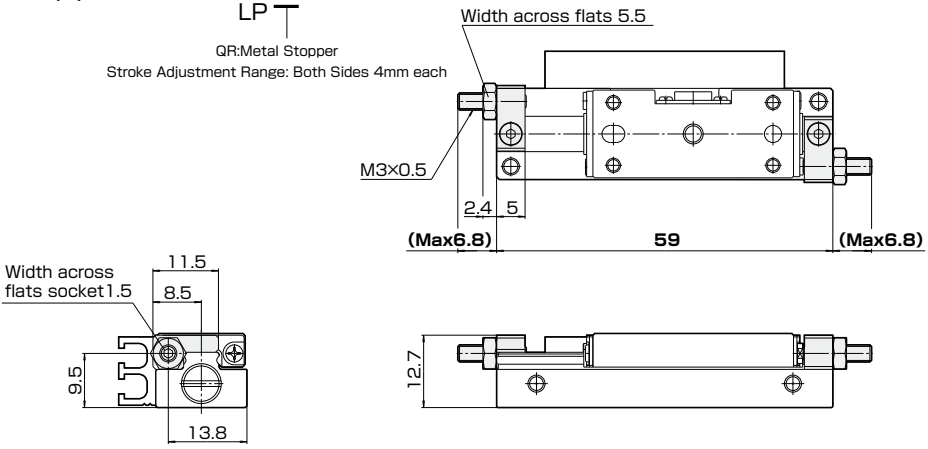
LP:Axial Ported



With Metal Stopper

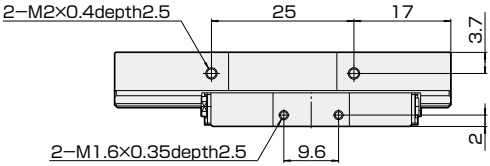
PPT(S)−GT6Y−10−PP TP QR LP

QR:Metal Stopper
Stroke Adjustment Range: Both Sides 4mm each



Without Magnet, Switch Rail

PPT−GT6Y−10−PP TP LP

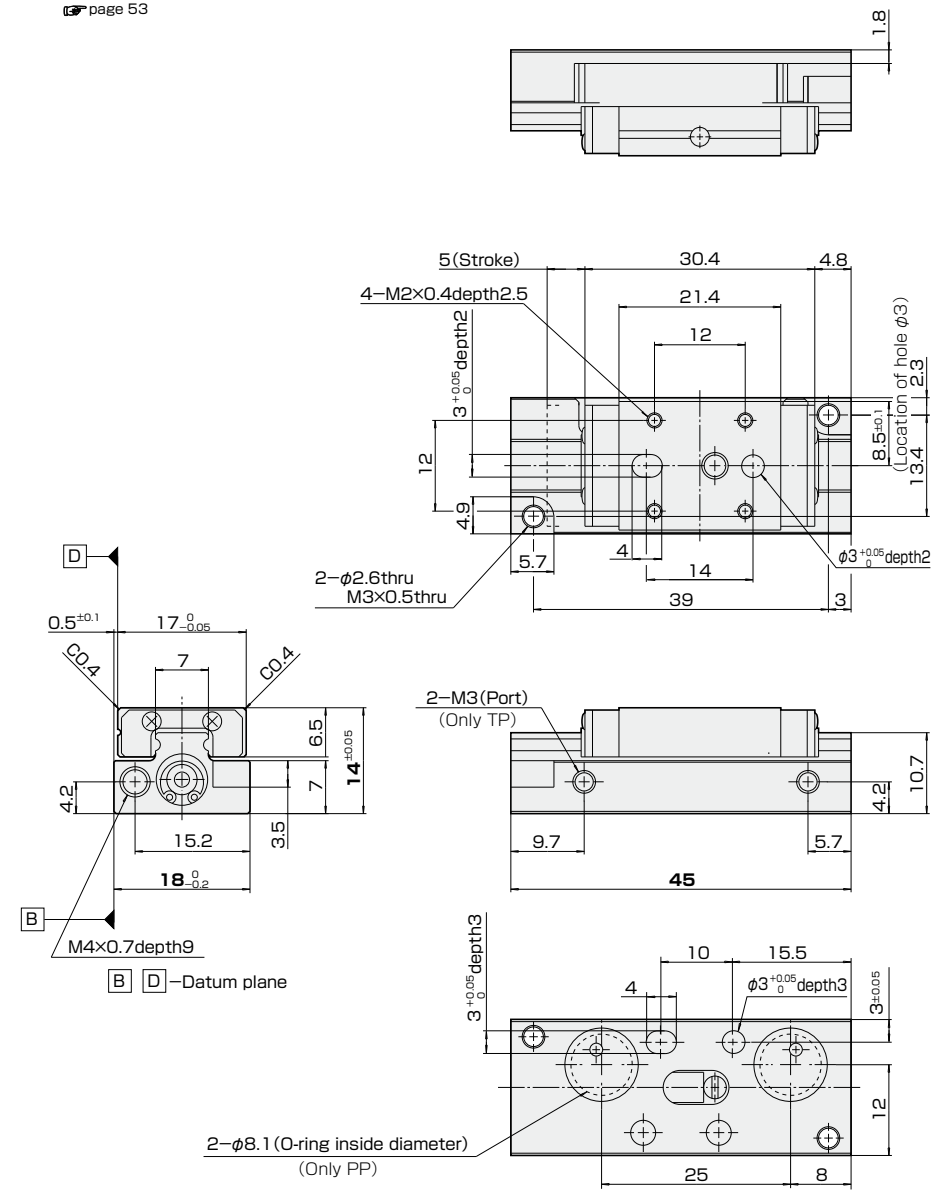


DIMENSIONS(mm) PPT6M–5 BASIC

PPT–SD6M–5–$\frac{TP}{PP}$

Bore Size
Stroke
Piping
TP·····Side Ported
PP·····Base Mounted

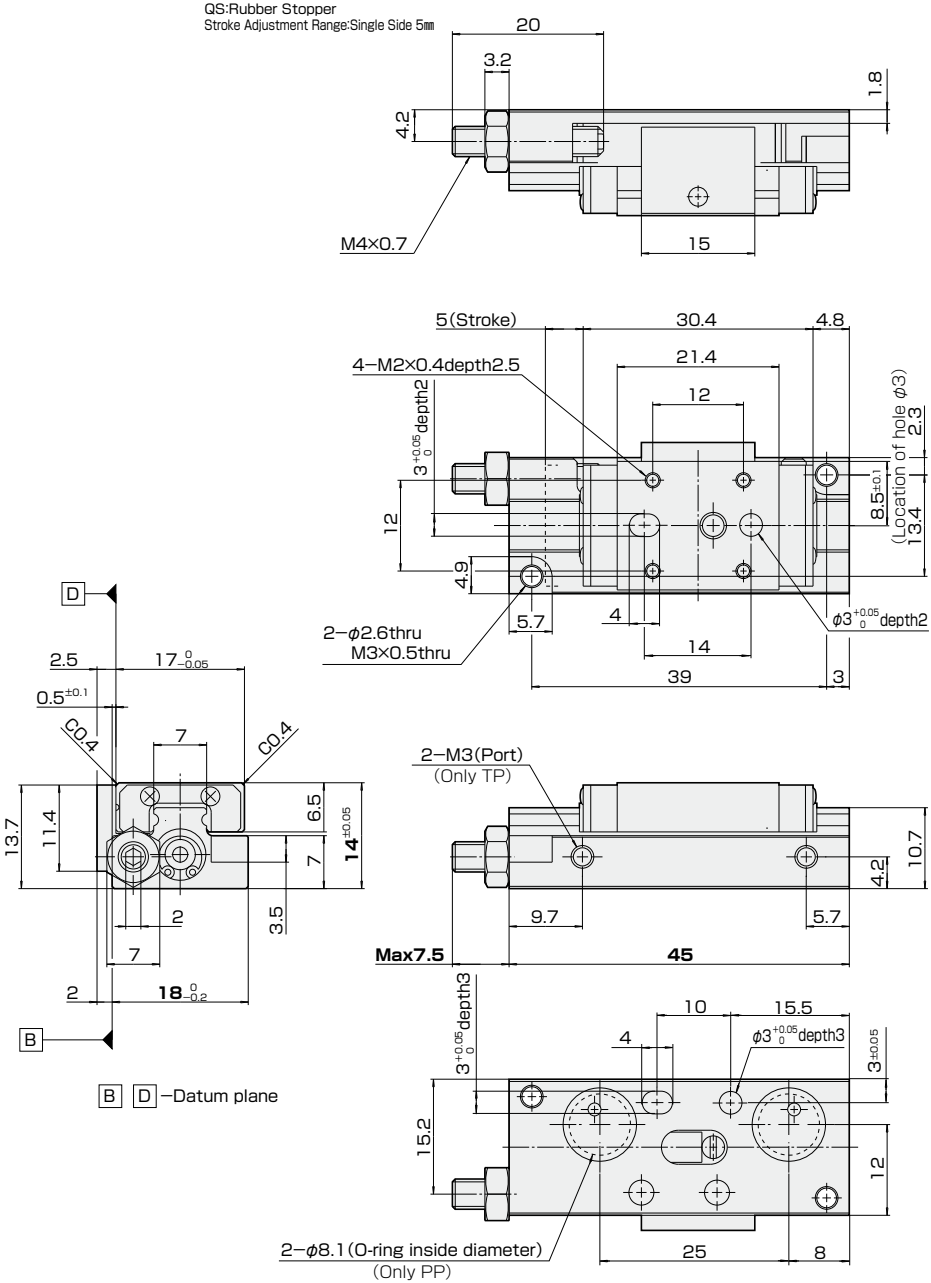
Caution: Installation of fitting and speed controllers
☞page 53



With Metal Stopper, with Rubber Stopper

PPT−SD6M−5−$\frac{\text{TP QP}}{\text{PP QS}}$

QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:Single Side 5mm

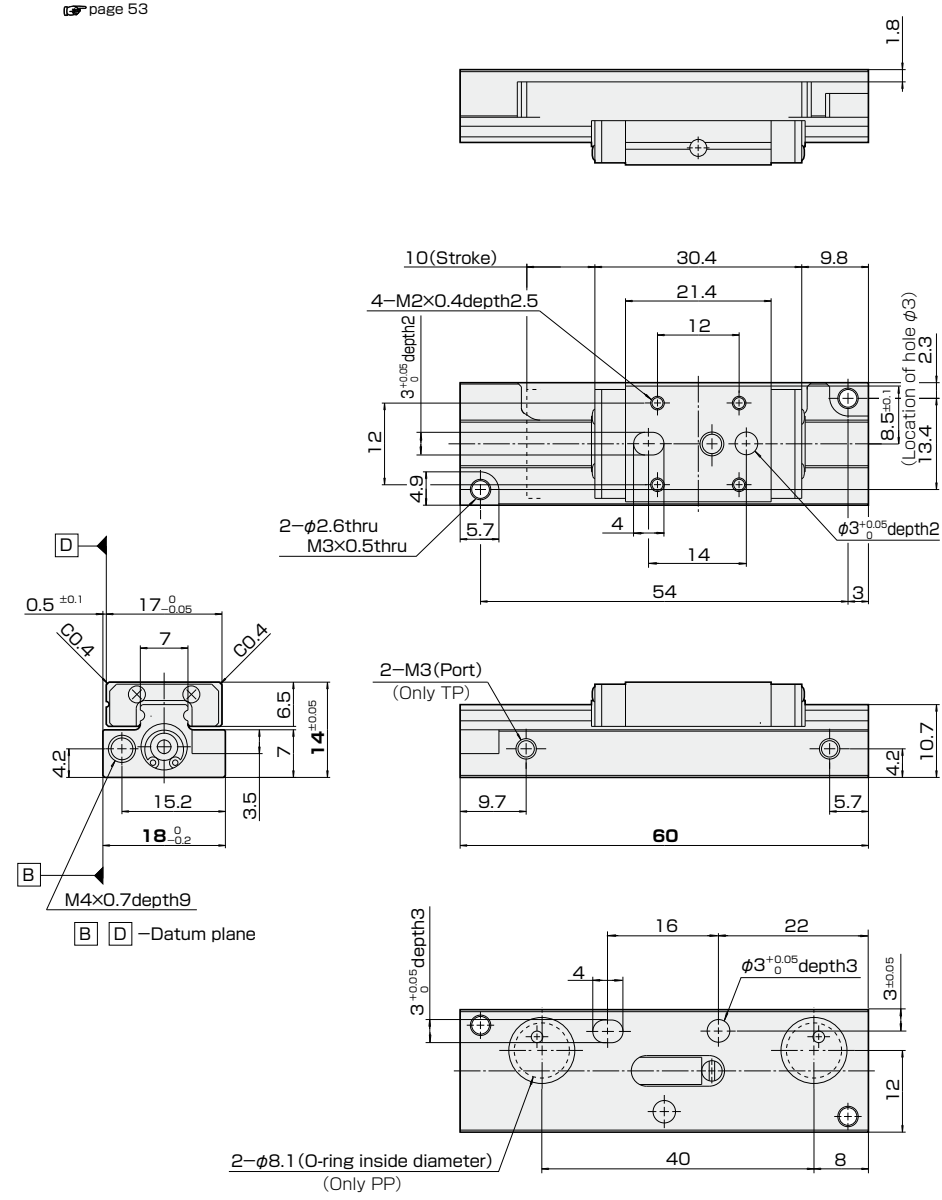


DIMENSIONS(mm) PPT6M−10 BASIC

PPT−SD6M−10−$\frac{TP}{PP}$

Bore Size
Stroke
Piping
TP·····Side Ported
PP·····Base Mounted

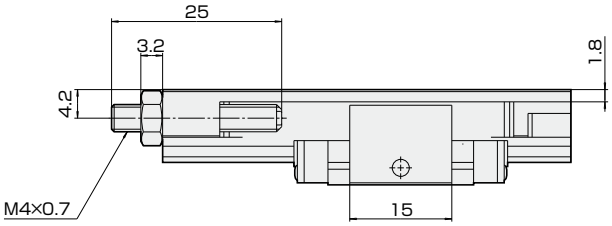
Caution: Installation of fitting and speed controllers
☞page 53

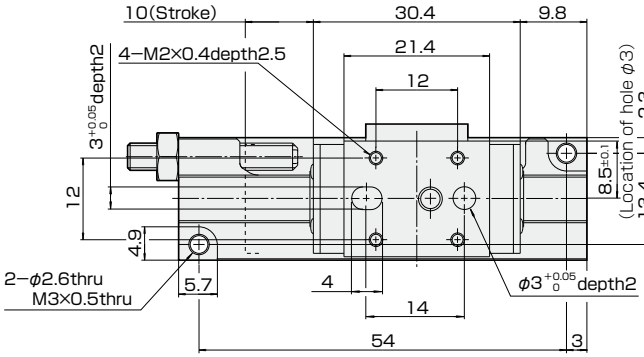


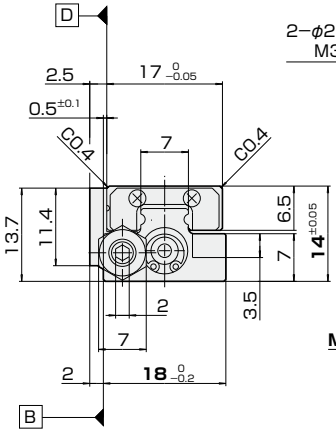
With Metal Stopper, with Rubber Stopper

PPT−SD6M−10−$\begin{matrix}\text{TP QP}\\\text{PP QS}\end{matrix}$

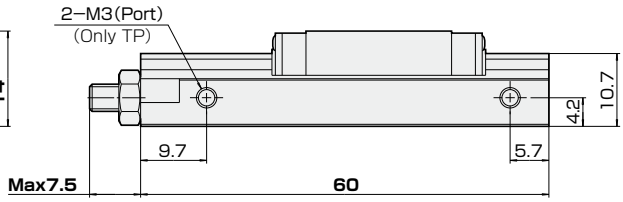
QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:Single Side 5㎜

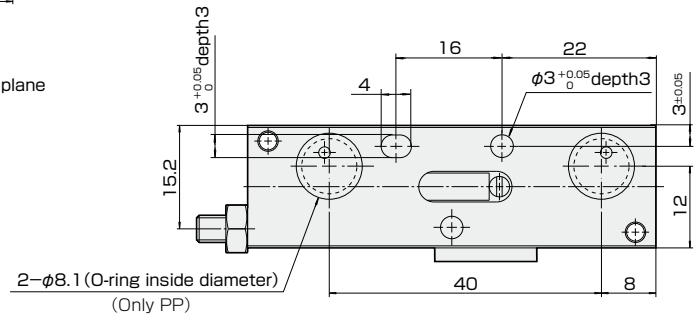






B D −Datum plane

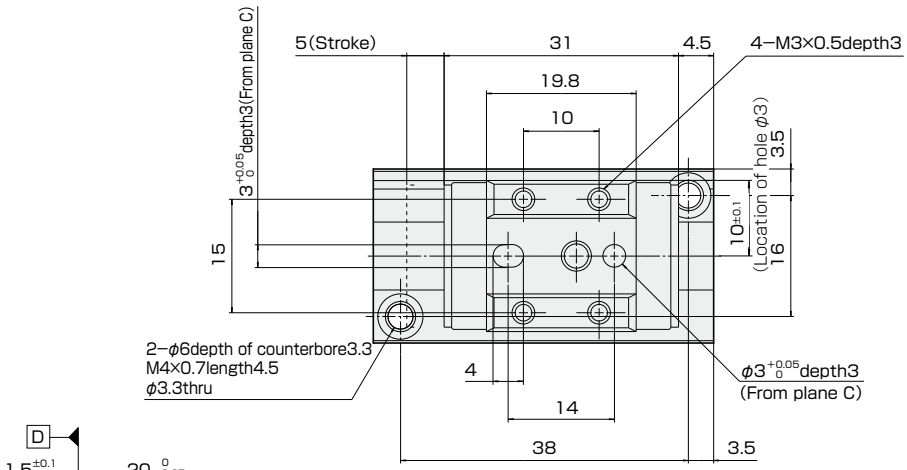


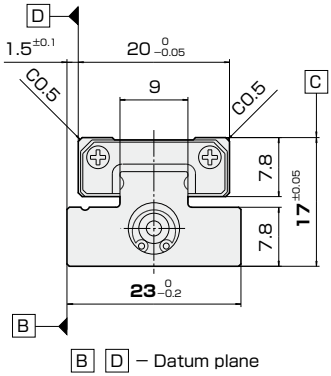


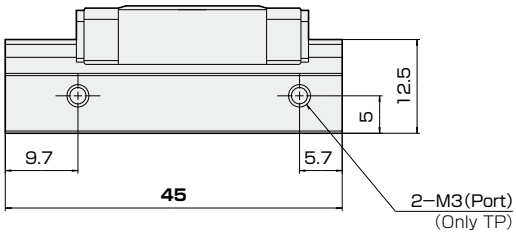
DIMENSIONS(mm) PPT6−5 BASIC

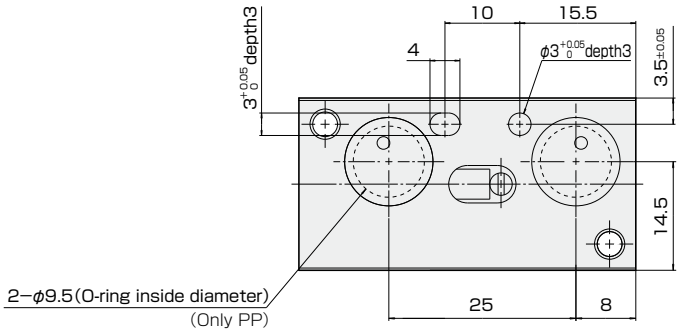
PPT−SD6−5−$\frac{TP}{PP}$

Bore Size / Stroke / Piping
TP·····Side Ported
PP·····Base Mounted





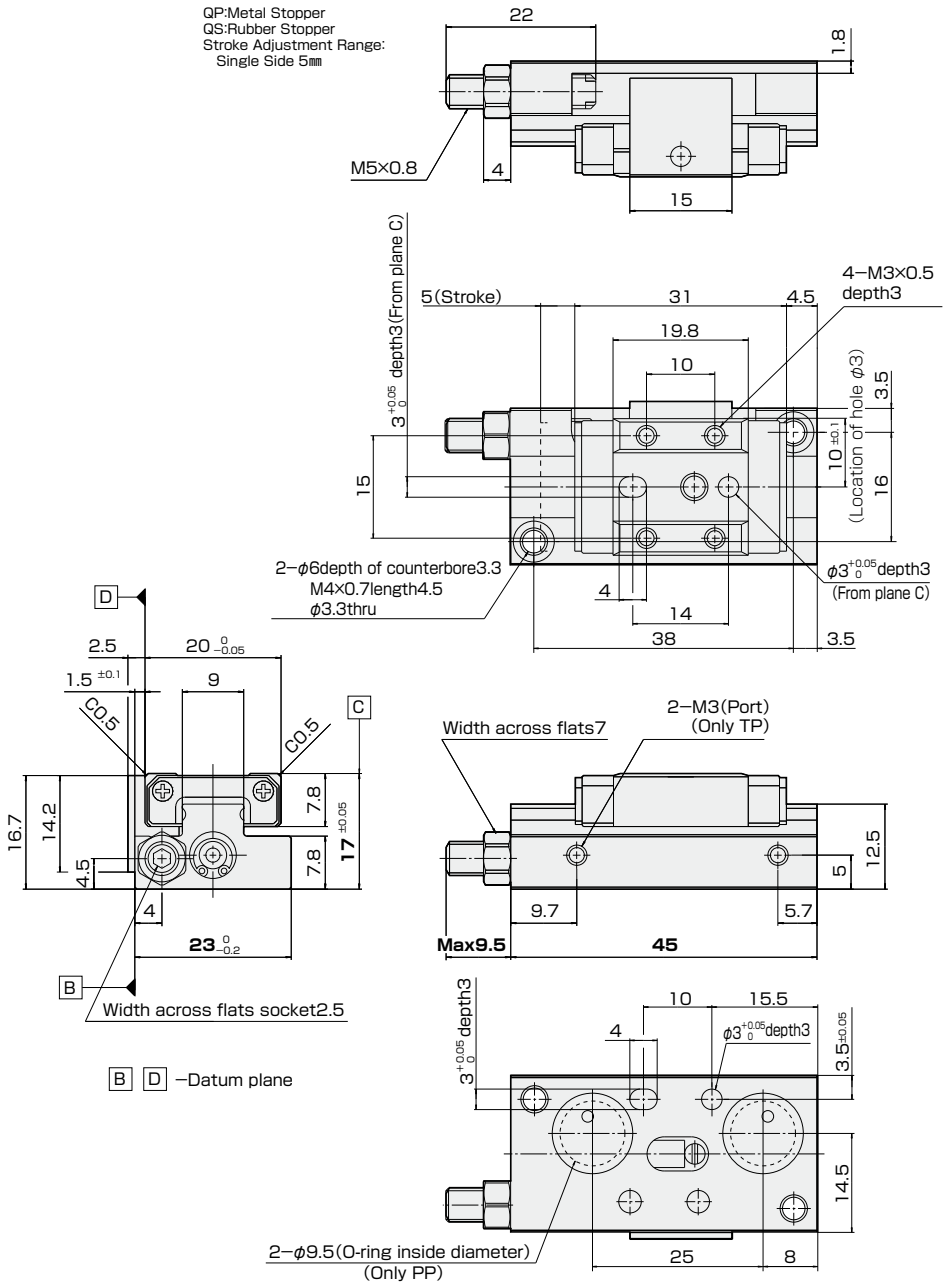




With Metal Stopper, with Rubber Stopper

PPT−SD6−5− TP QP / PP QS

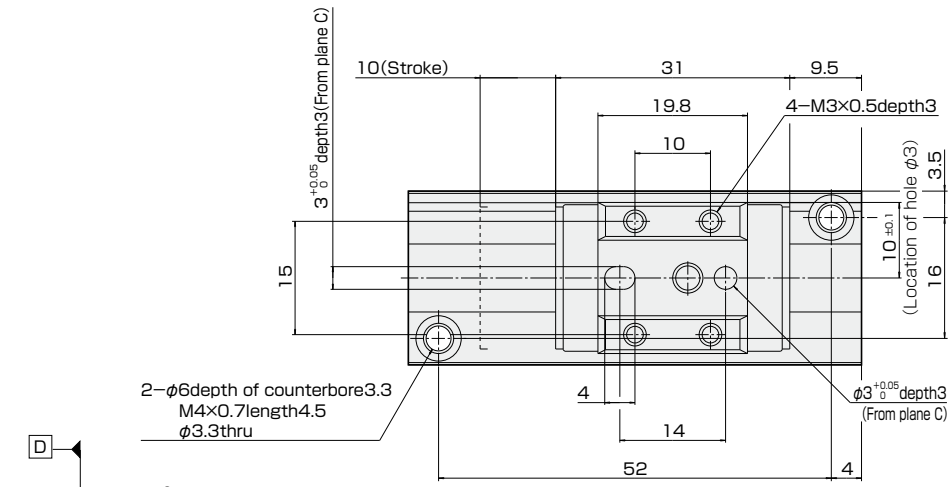
QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:
Single Side 5㎜

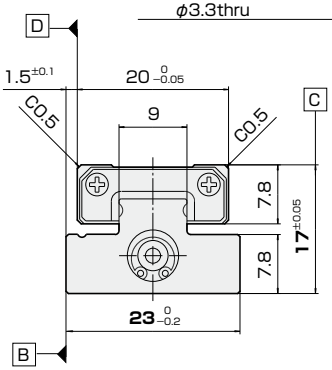


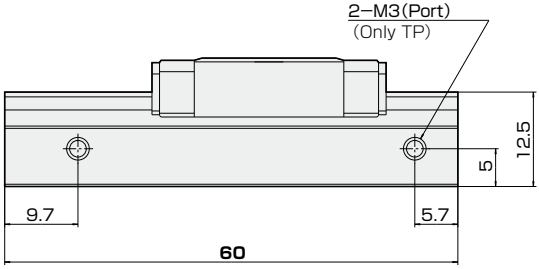
DIMENSIONS(mm) PPT6−10 BASIC

PPT−SD6−10−$\frac{TP}{PP}$

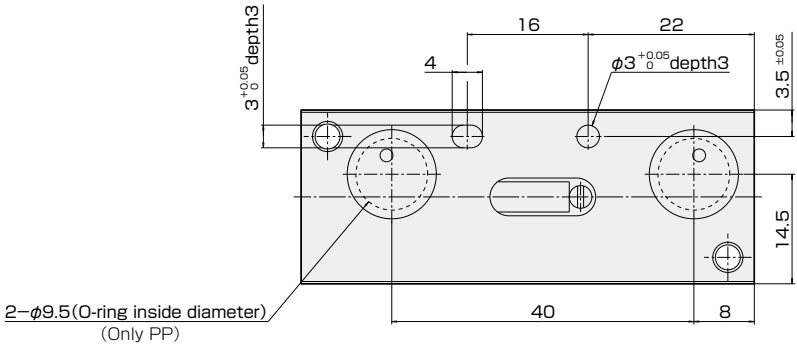
Bore Size
Stroke
Piping
TP·····Side Ported
PP·····Base Mounted







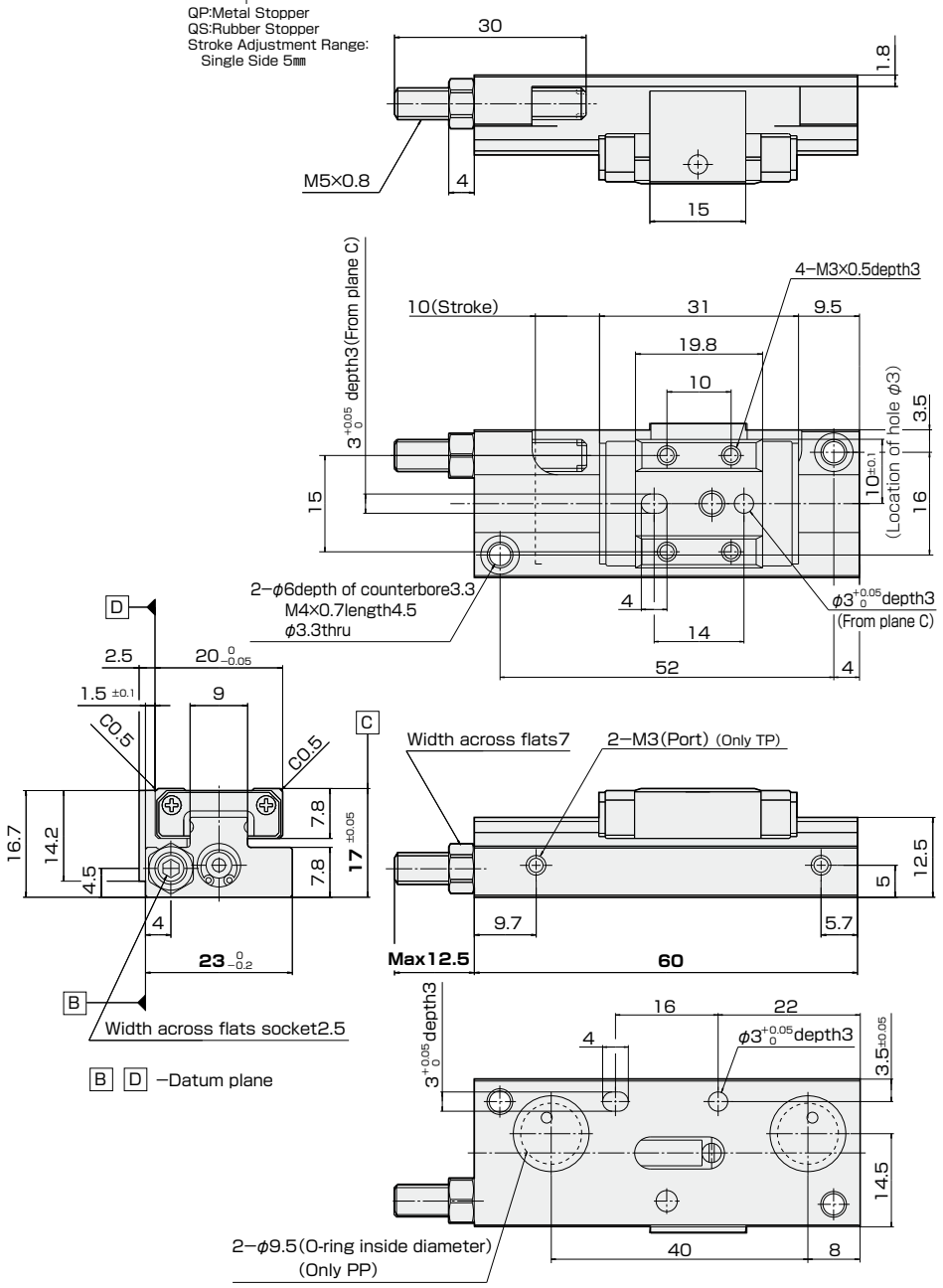
B D − Datum plane



With Metal Stopper, with Rubber Stopper

PPT−SD6−10− TP QP / PP QS

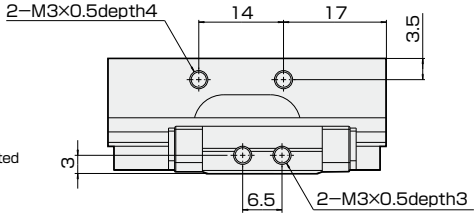
QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:
Single Side 5mm



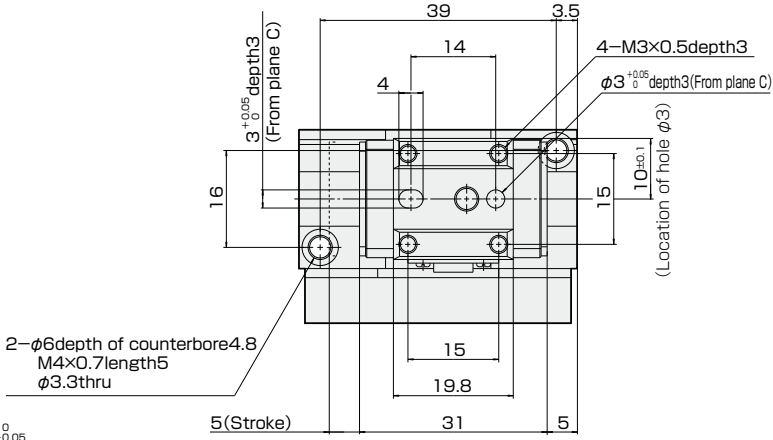
DIMENSIONS(mm) PPT8−5 BASIC

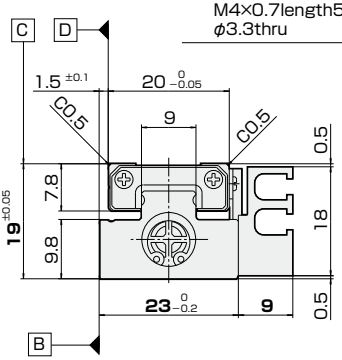
PPTS−SD8− 5− TP / PP

- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

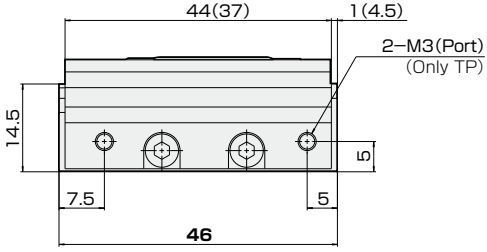


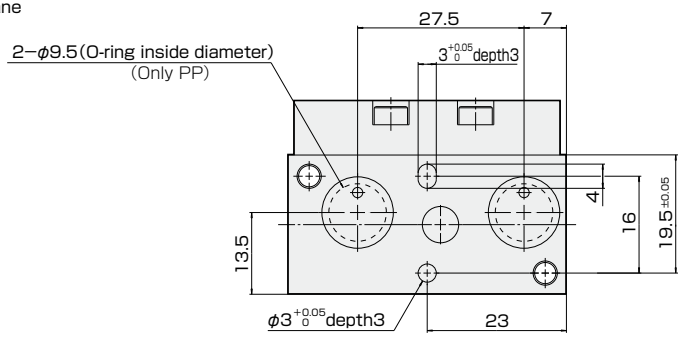
The dimension in ( ) is for PP.





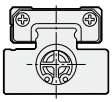
B D −Datum plane

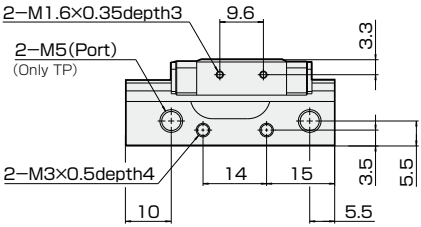




Without Magnet, Switch Rail

PPT−SD8−5−$\frac{TP}{PP}$

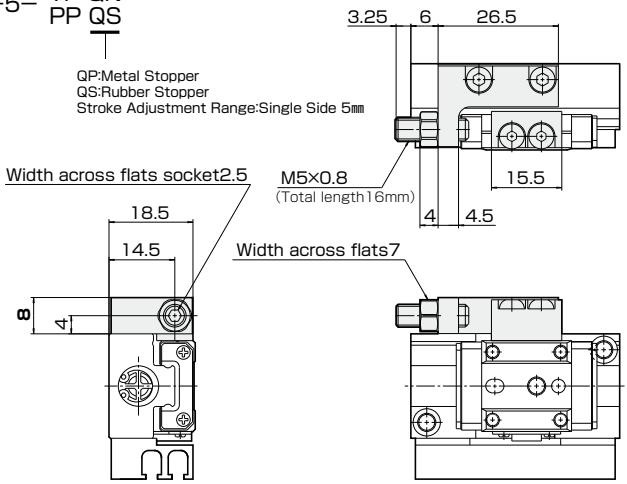




With Metal Stopper, with Rubber Stopper

PPT(S)−SD8−5−$\frac{TP\ QN}{PP\ \underline{QS}}$

QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:Single Side 5㎜



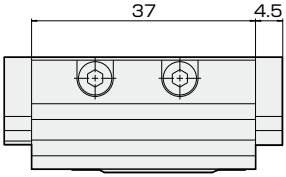
With Shock Absorber

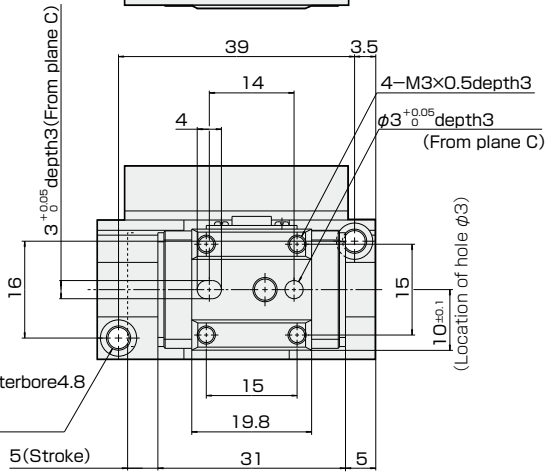
The shock absorber is NOT available for PPT-SD8-5.

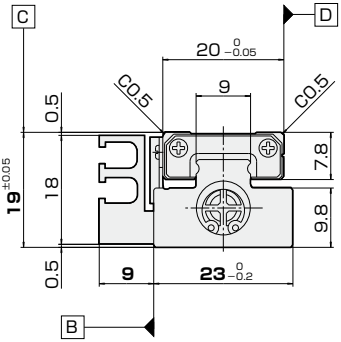
DIMENSIONS(mm) PPT8-5 SYMMETRIC

PPTS-GT8- 5- TP / PP

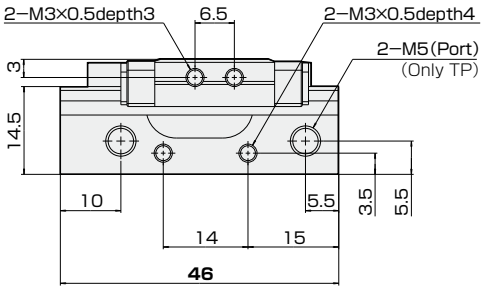
- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

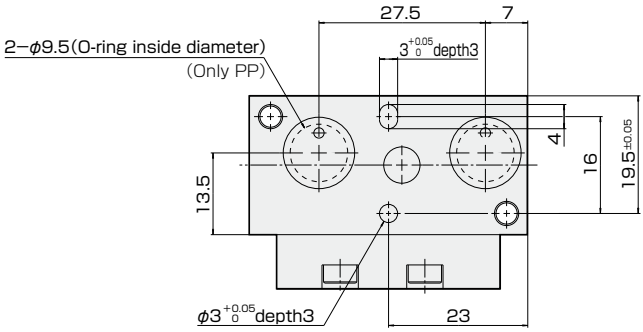






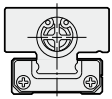
B D -Datum plane

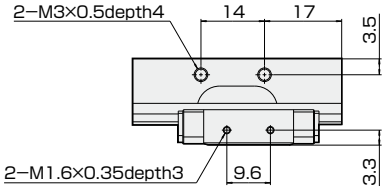




Without Magnet, Switch Rail

PPT−GT8−5− TP / PP

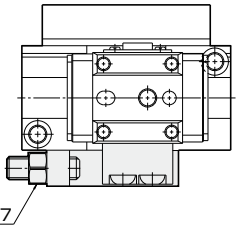


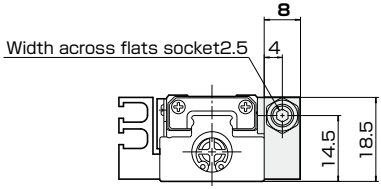


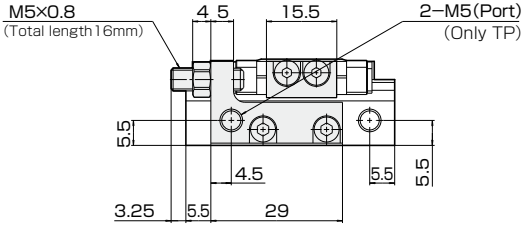
With Metal Stopper, with Rubber Stopper

PPT(S)−GT8−5− TP QN / PP QS

QP:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range:Single Side5㎜







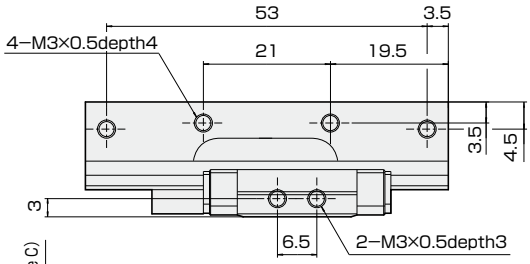
With Shock Absorber

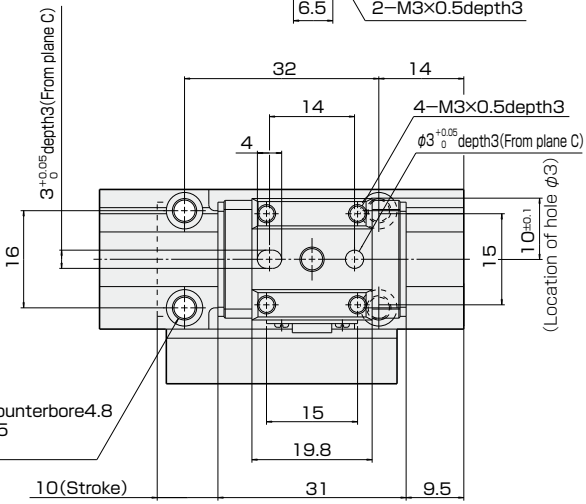
The shock absorber (QM) is NOT available for GT.

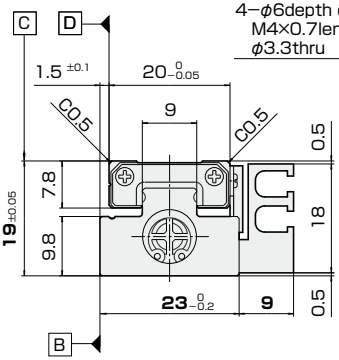
DIMENSIONS(mm) PPT8−10 BASIC

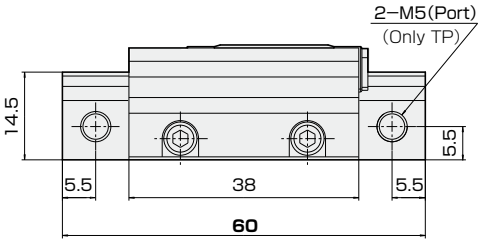
PPTS−SD8−10−TP/PP

- Basic
- Bore Size
- Stroke
- With Magnet, Switch Rail
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

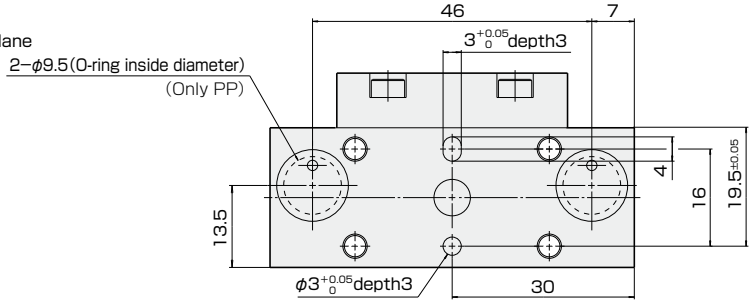






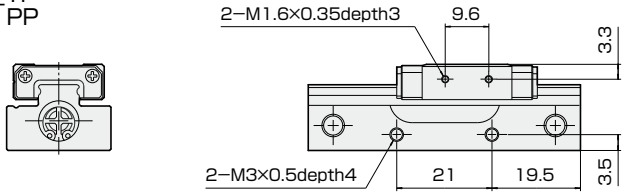


B D − Datum plane



Without Magnet, Switch Rail

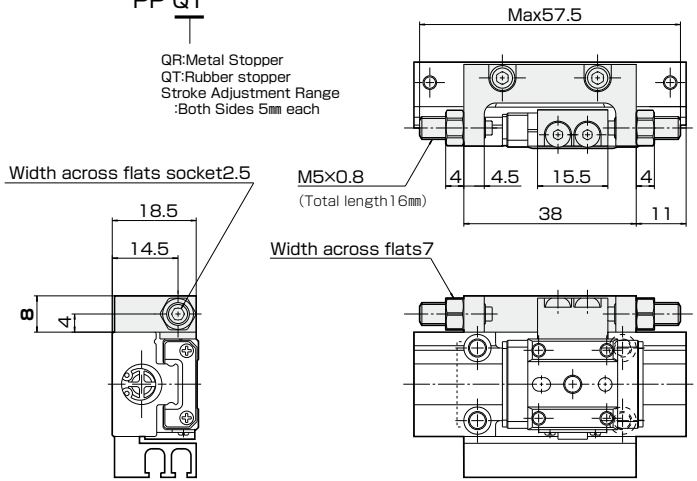
PPT−SD8−10−$\frac{TP}{PP}$



With Metal Stopper, with Rubber Stopper

PPT(S)−SD8−10−$\frac{TP\ QR}{PP\ QT}$

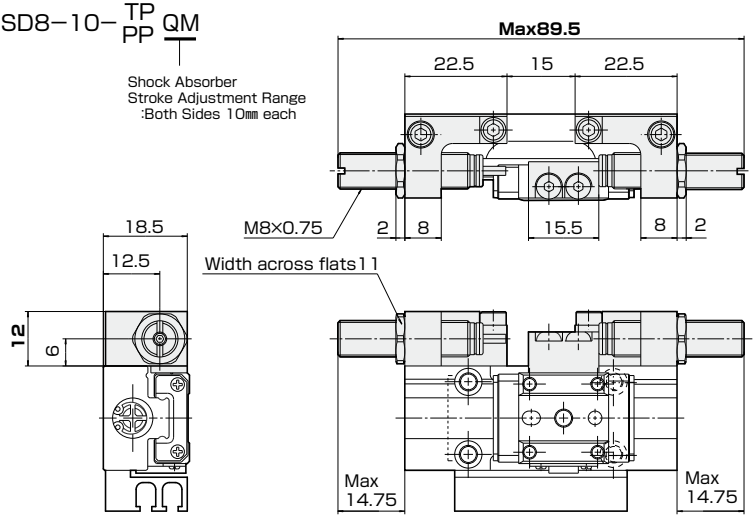
QR:Metal Stopper
QT:Rubber stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

PPT(S)−SD8−10−$\frac{TP}{PP}$ QM

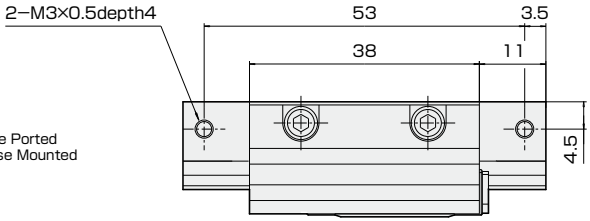
Shock Absorber
Stroke Adjustment Range
:Both Sides 10㎜ each

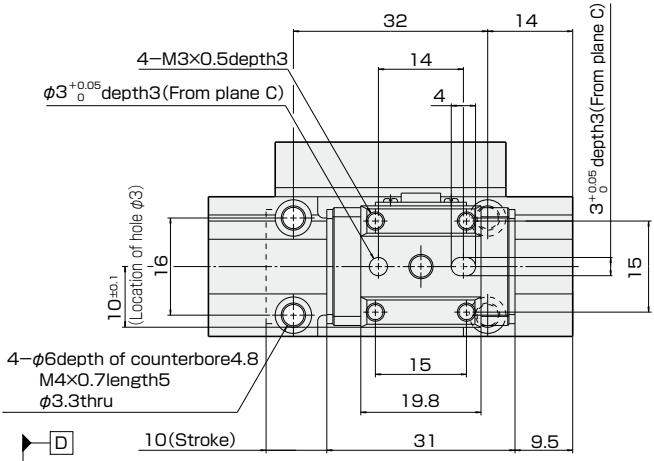


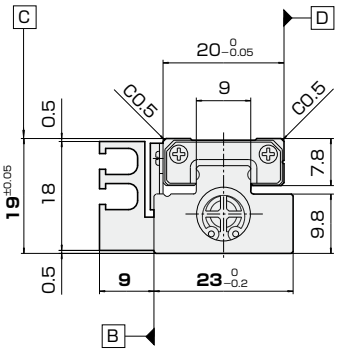
DIMENSIONS(mm) PPT8–10 SYMMETRIC

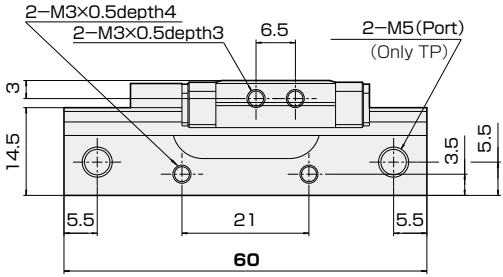
PPTS–GT8–10–TP/PP

- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

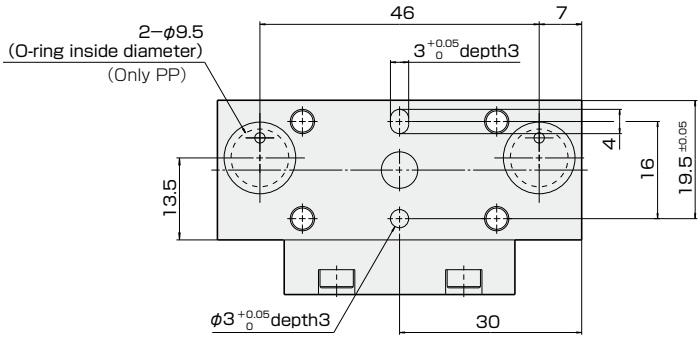






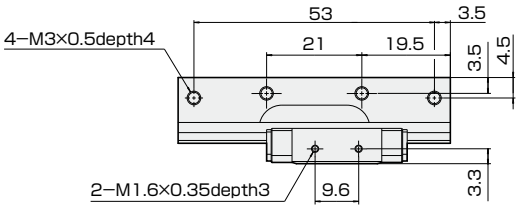


B D – Datum plane



Without Magnet, Switch Rail

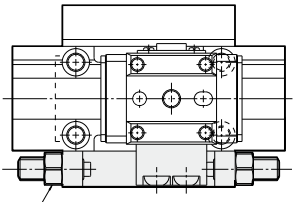
PPT−GT8−10−$\begin{matrix}TP\\PP\end{matrix}$

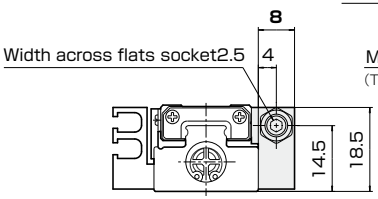


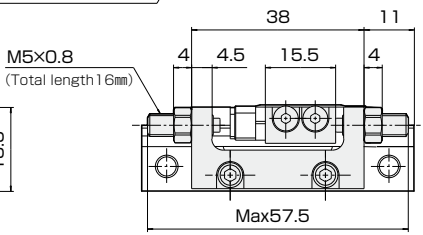
With Metal Stopper, with Rubber Stopper

PPT(S)−GT8−10−$\begin{matrix}TP\ QR\\PP\ QT\end{matrix}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each







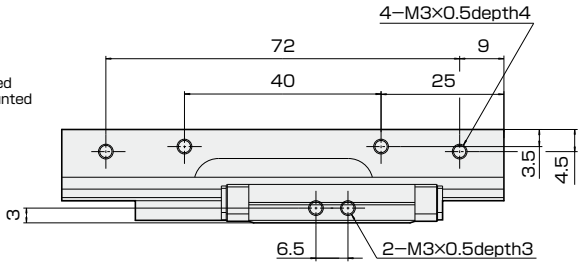
With Shock Absorber

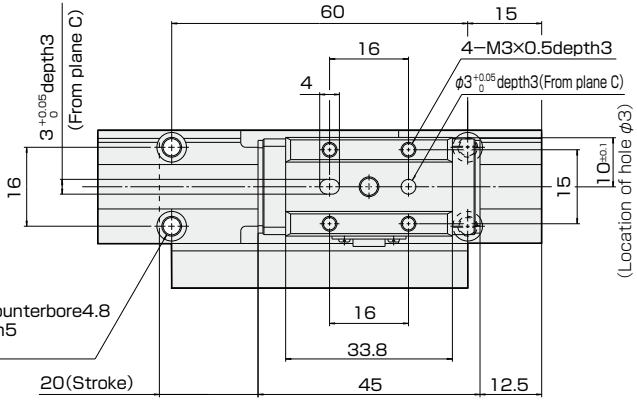
The shock absorber (QM) is NOT available for GT.
In this case, select SD only.

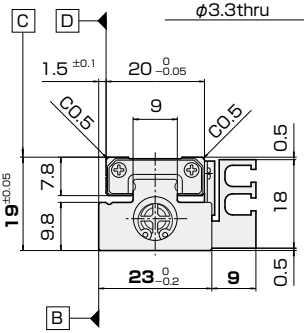
DIMENSIONS(mm) PPT8–20 BASIC

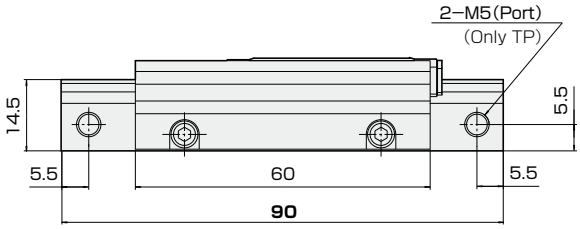
PPTS–SD8–20–TP/PP

- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

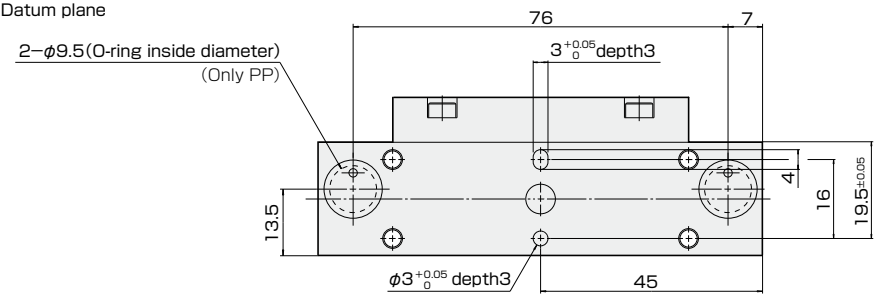






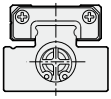


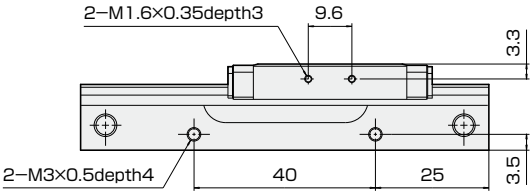
B D – Datum plane



Without Magnet, Switch Rail

PPT−SD8−20−$\frac{TP}{PP}$

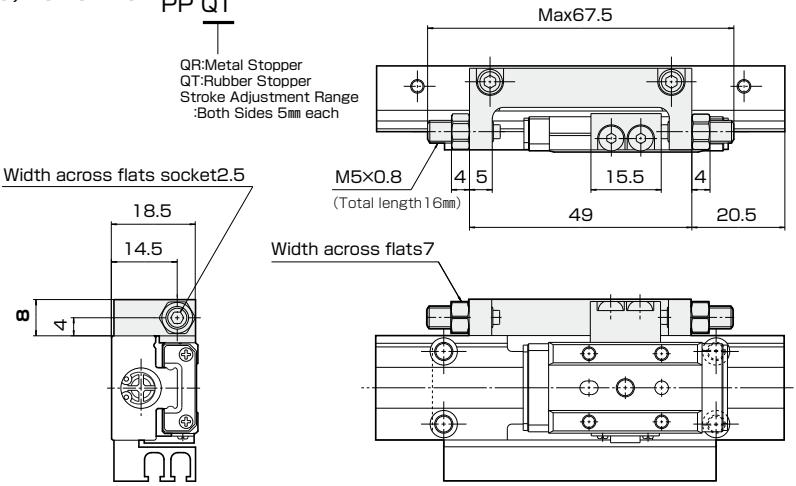




With Metal Stopper, with Rubber Stopper

PPT(S)−SD8−20−$\frac{TP\ QR}{PP\ QT}$

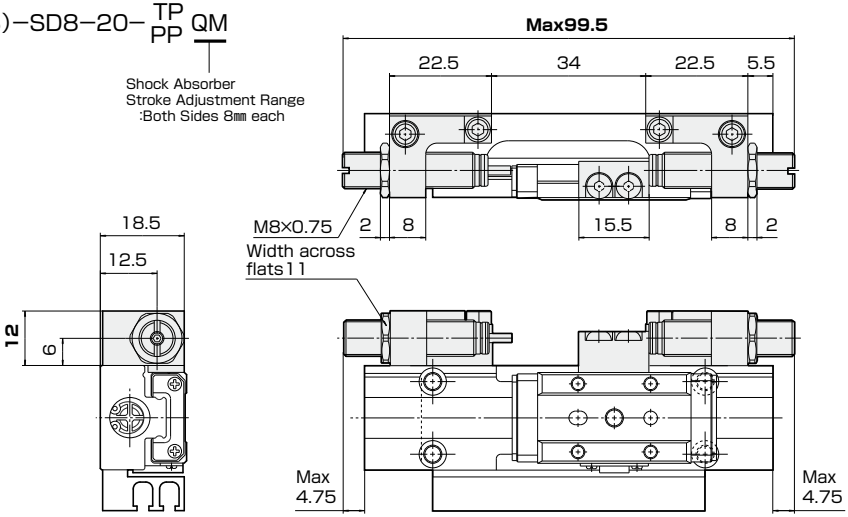
QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

PPT(S)−SD8−20−$\frac{TP}{PP}$ QM

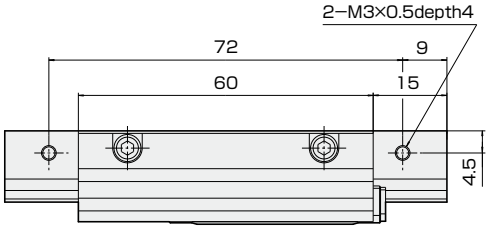
Shock Absorber
Stroke Adjustment Range
:Both Sides 8㎜ each

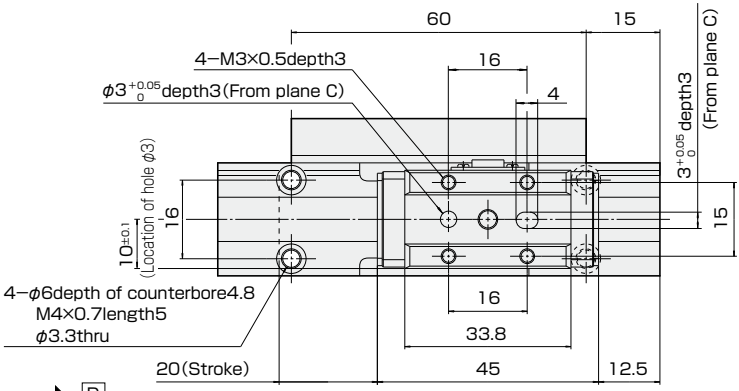


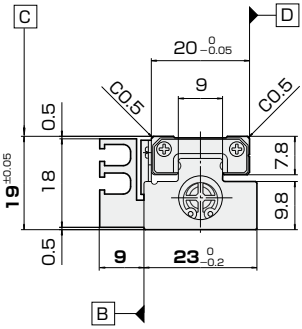
DIMENSIONS(mm) PPT8–20 SYMMETRIC

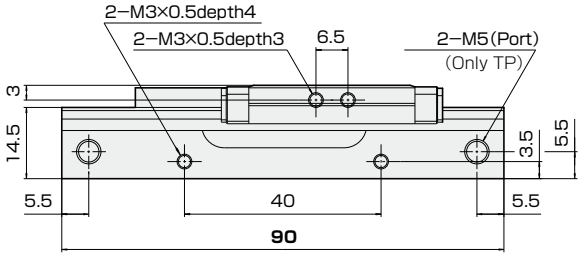
PPTS–GT8–20–TP/PP

- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

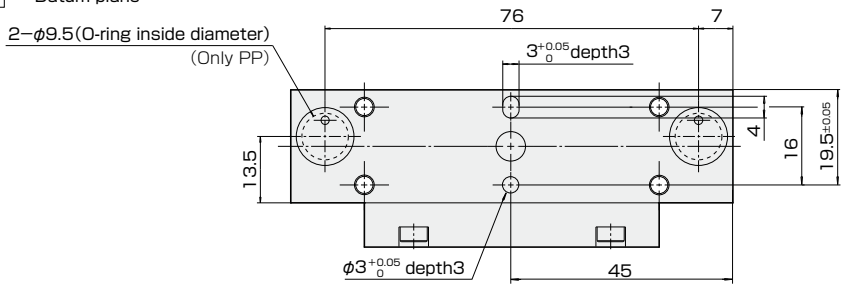






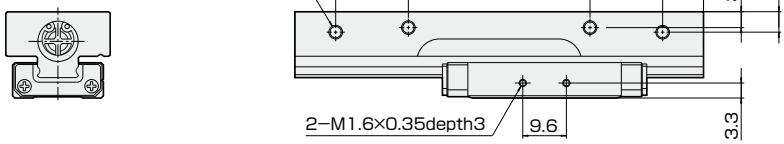


B D – Datum plane



Without Magnet, Switch Rail

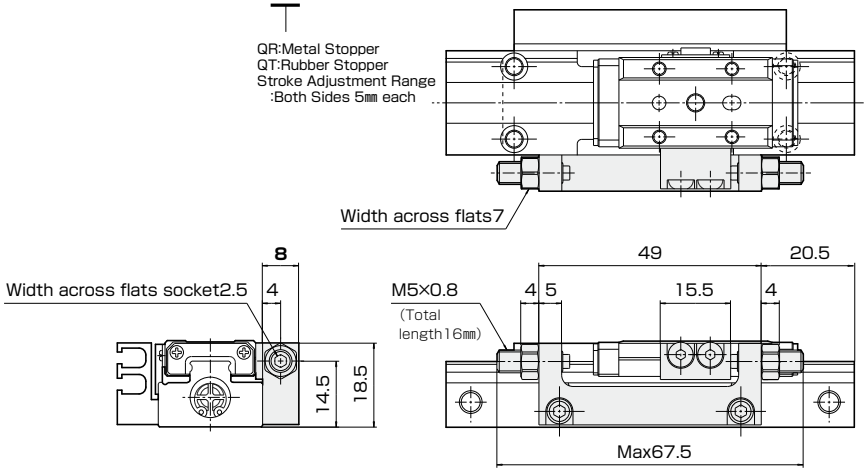
PPT–GT8–20–$\frac{TP}{PP}$



With Metal Stopper, with Rubber Stopper

PPT(S)–GT8–20–$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

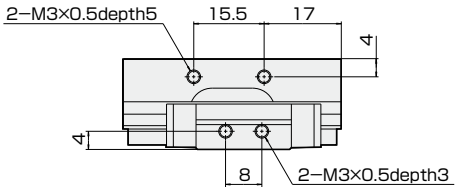
The shock absorber (QM) is NOT available for GT.
In this case, select SD only.

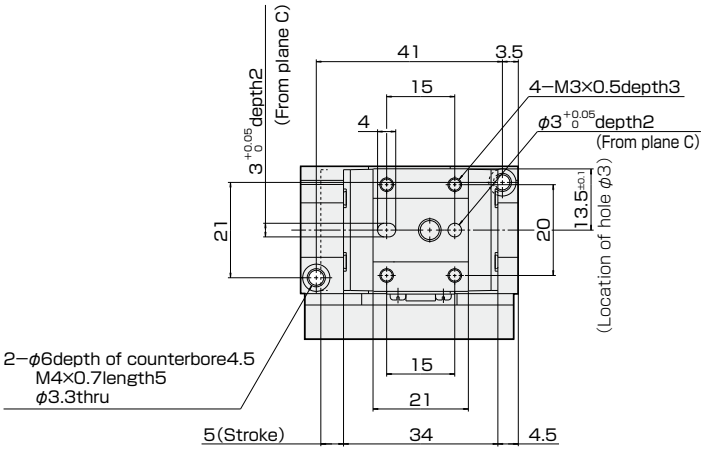
DIMENSIONS(mm) PPT10−5 BASIC

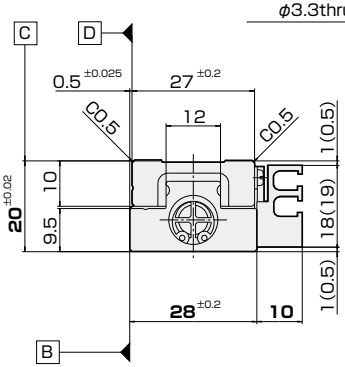
PPTS−SD10− 5−TP/PP

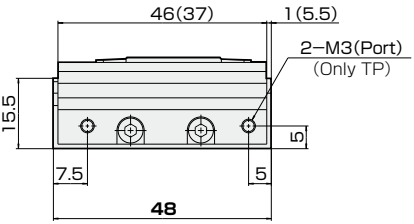
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

The dimension in ( ) is for PP.

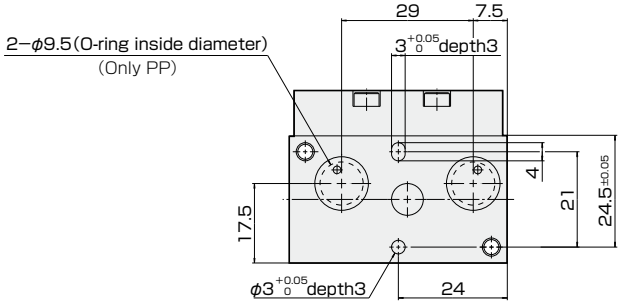






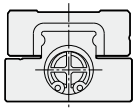


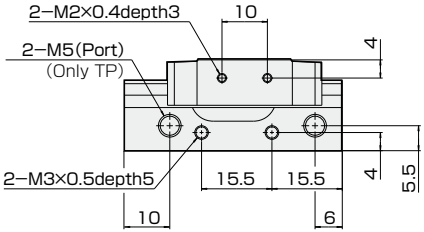
B D −Datum plane



Without Magnet, Switch Rail

PPT−SD10−5− TP / PP

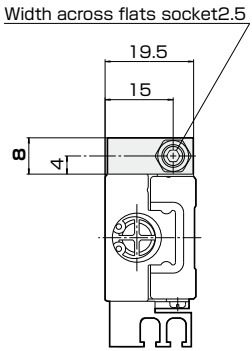


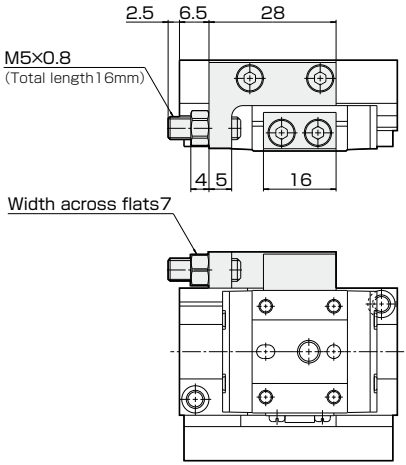


With Metal Stopper, with Rubber Stopper

PPT(S)−SD10−5− TP QN / PP QS

QN:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range
:Single Side 5㎜





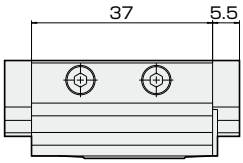
With Shock Absorber

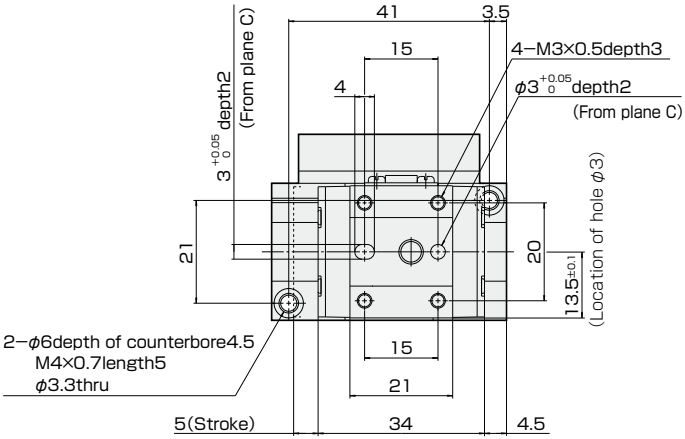
The shock absorber is NOT available for PPT-SD10-5.

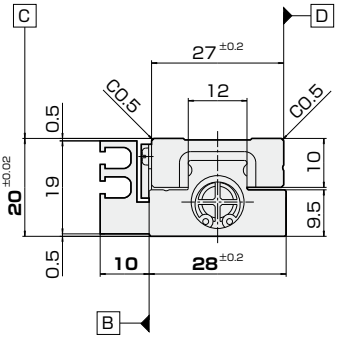
DIMENSIONS(mm) PPT10–5 SYMMETRIC

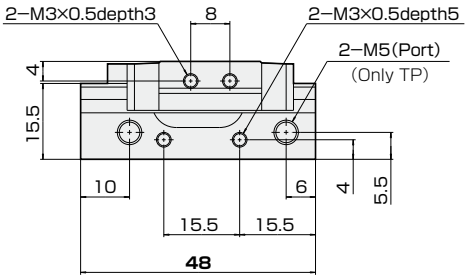
PPTS–GT10– 5– TP / PP

- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

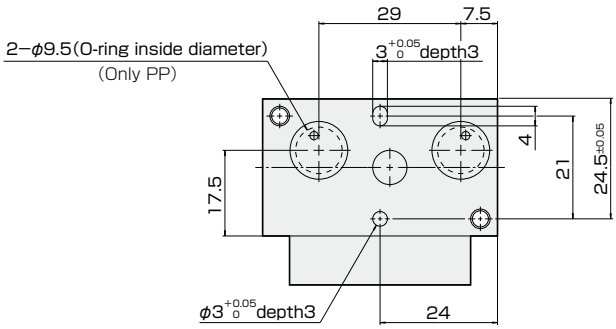






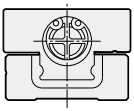


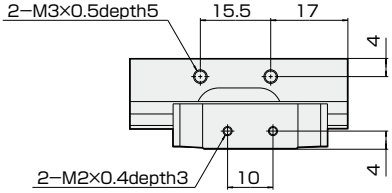
B D – Datum plane



Without Magnet, Switch Rail

PPT−GT10−5− TP / PP

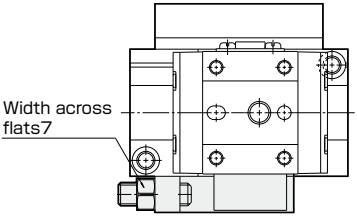


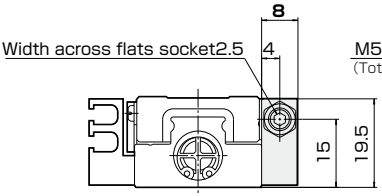


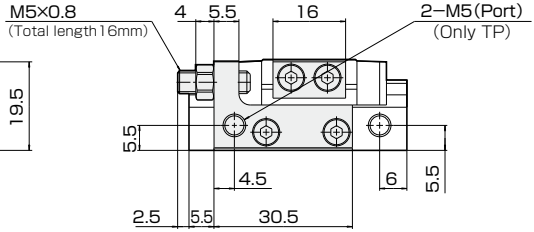
With Metal Stopper, with Rubber Stopper

PPT(S)−GT10−5− TP QN / PP QS

QN:Metal Stopper
QS:Rubber Stopper
Stroke Adjustment Range
:Single Side5㎜







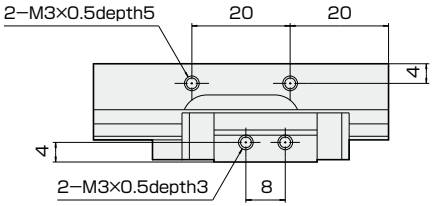
With Shock Absorber

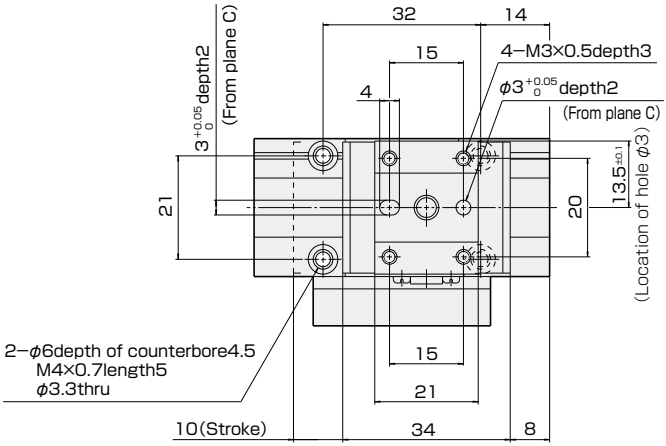
The shock absorber (QM) is NOT available for GT.

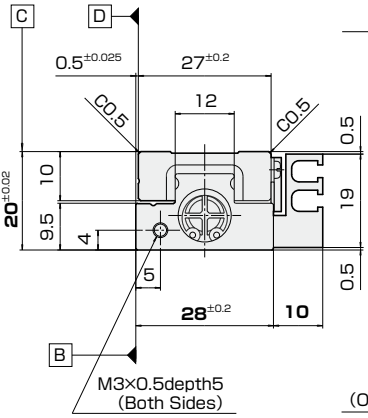
DIMENSIONS(mm) PPT10-10 BASIC

PPTS-SD10-10-TP/PP

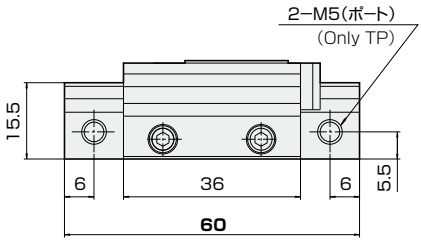
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

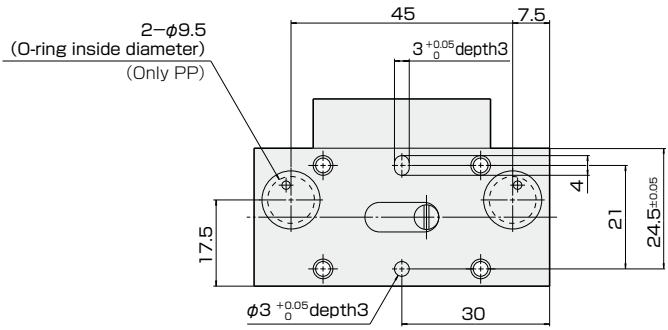






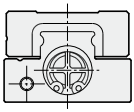
B D – Datum plane

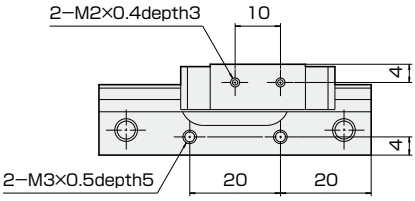




Without Magnet, Switch Rail

PPT−SD10−10−$\frac{TP}{PP}$

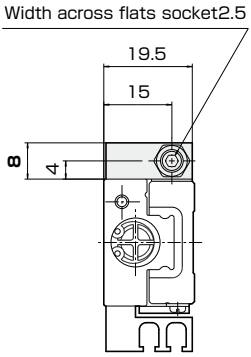


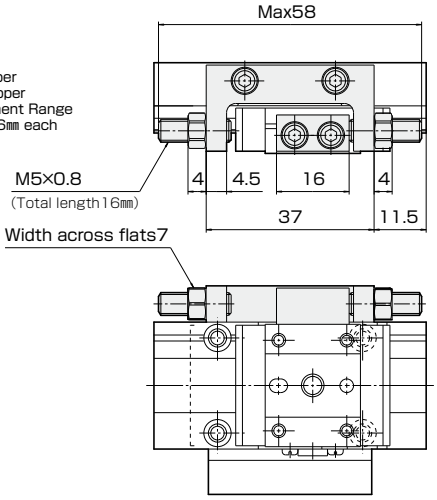


With Metal Stopper, with Rubber Stopper

PPT(S)−SD10−10−$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 6㎜ each

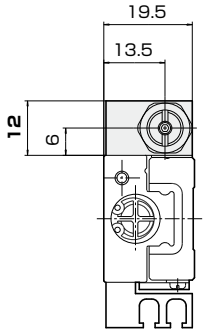


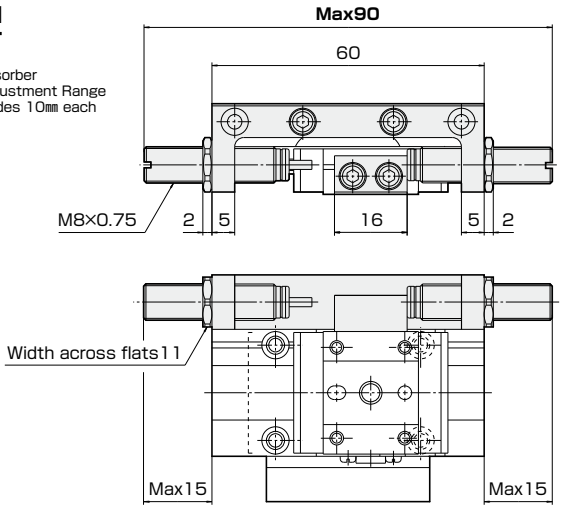


With Shock Absorber

PPT(S)−SD10−10−$\frac{TP}{PP}$ QM

Shock Absorber
Stroke Adjustment Range
:Both Sides 10㎜ each

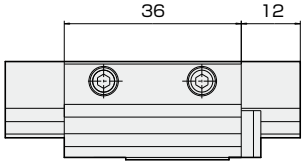


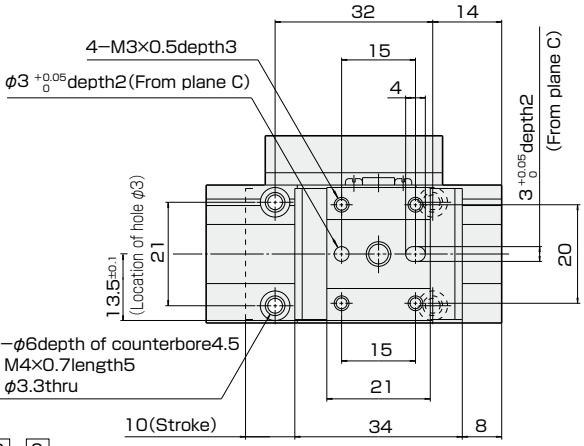


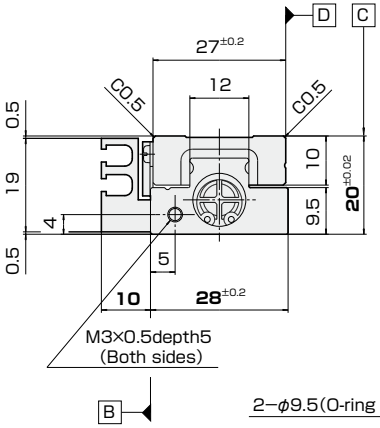
DIMENSIONS(mm) PPT10–10 SYMMETRIC

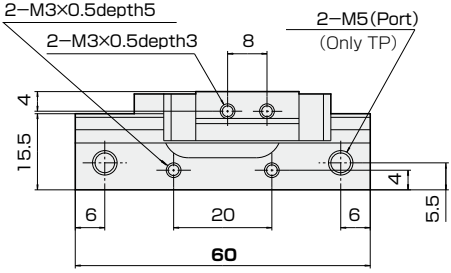
PPTS–GT10–10–TP/PP

- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

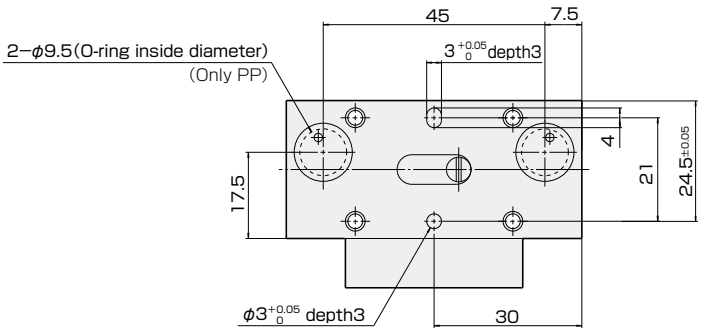






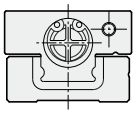


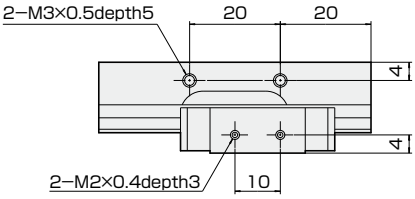
B D – Datum plane



Without Magnet, Switch Rail

PPT−GT10−10−$\frac{TP}{PP}$

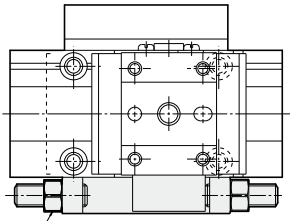


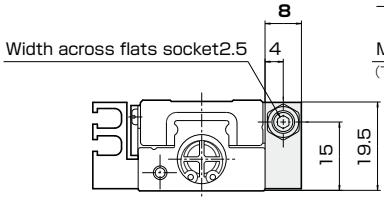


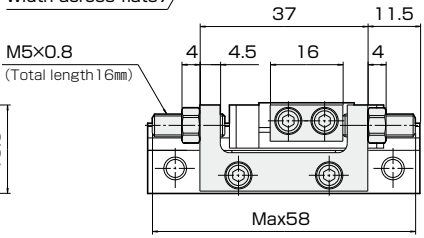
With Metal Stopper, with Rubber Stopper

PPT(S)−GT10−10− $\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 6㎜ each







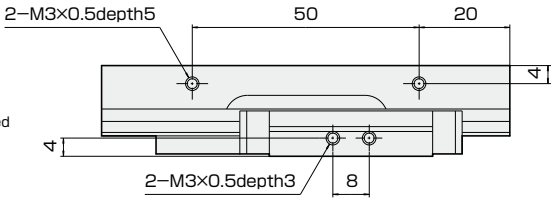
With Shock Absorber

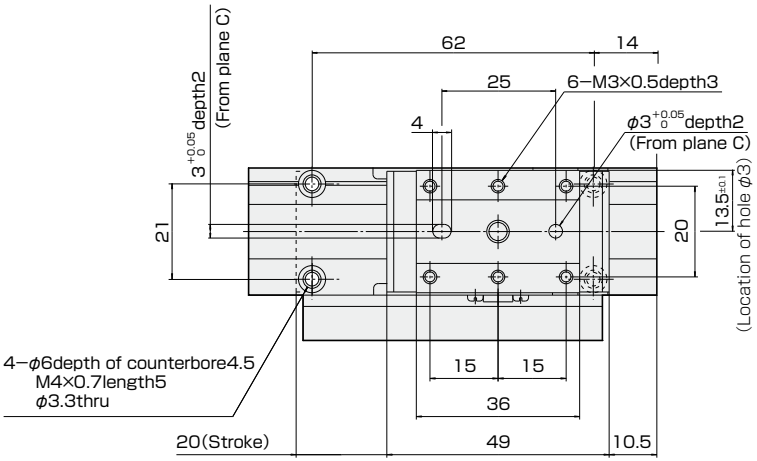
The shock absorber (QM) is NOT available for GT.
In this case, select SD only.

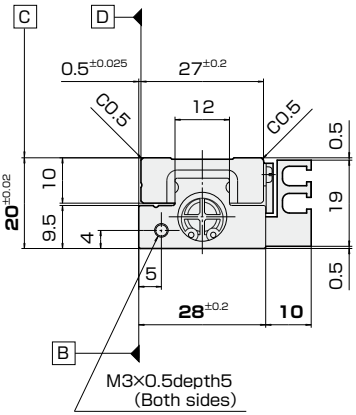
DIMENSIONS(mm) PPT10–20 BASIC

PPTS–SD10–20–TP / PP

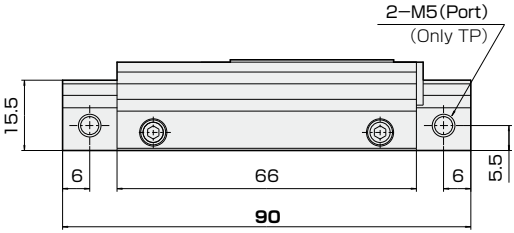
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

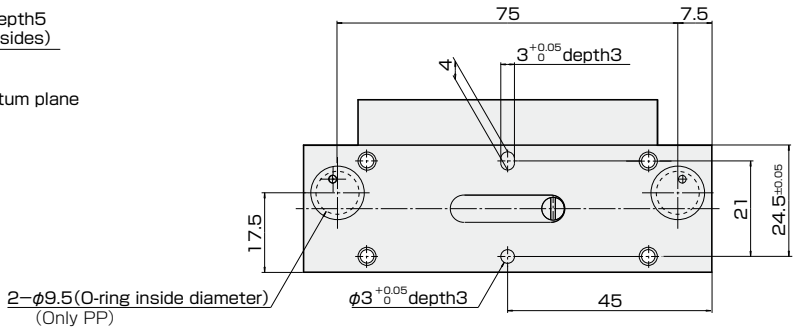






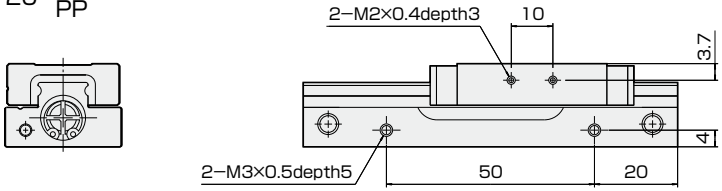
B D – Datum plane





Without Magnet, Switch Rail

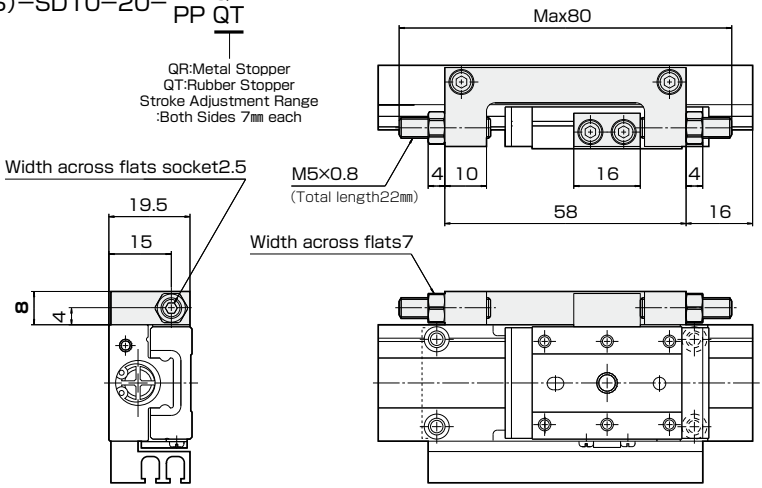
PPT−SD10−20−$\frac{TP}{PP}$



With Metal Stopper, with Rubber Stopper

PPT(S)−SD10−20−$\frac{TP\ QR}{PP\ QT}$

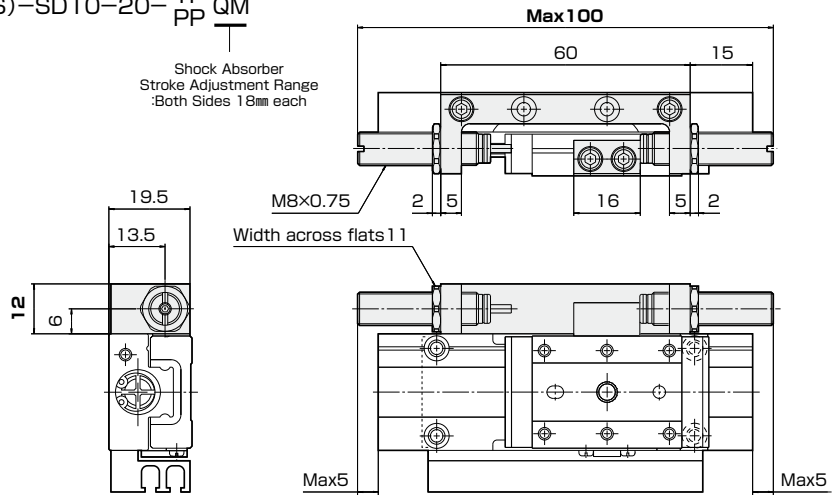
QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 7㎜ each



With Shock Absorber

PPT(S)−SD10−20−$\frac{TP}{PP}$ QM

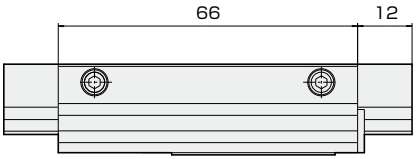
Shock Absorber
Stroke Adjustment Range
:Both Sides 18㎜ each

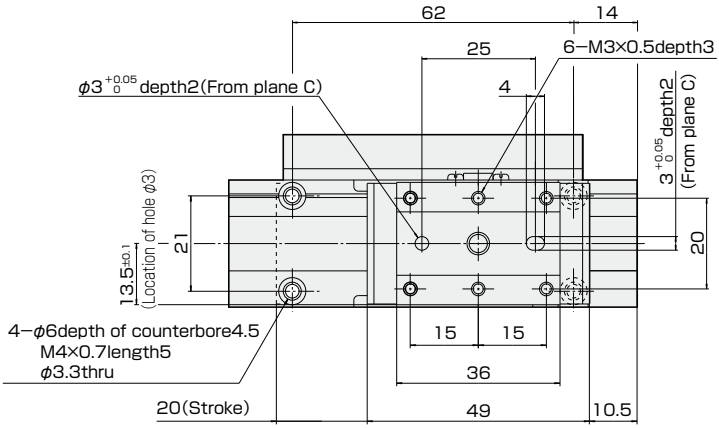


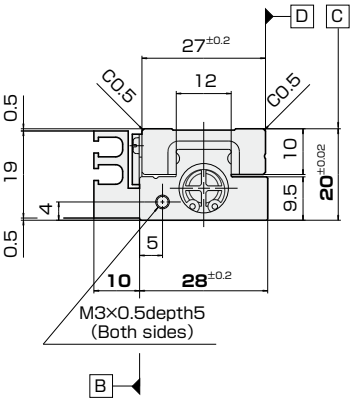
DIMENSIONS(mm) PPT10–20 SYMMETRIC

PPTS–GT10–20–TP / PP

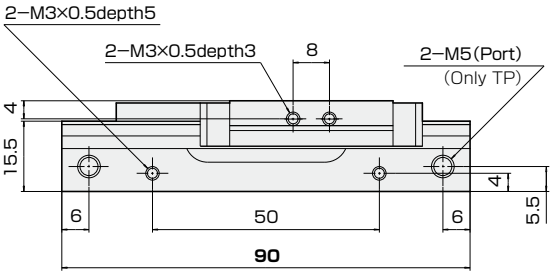
- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

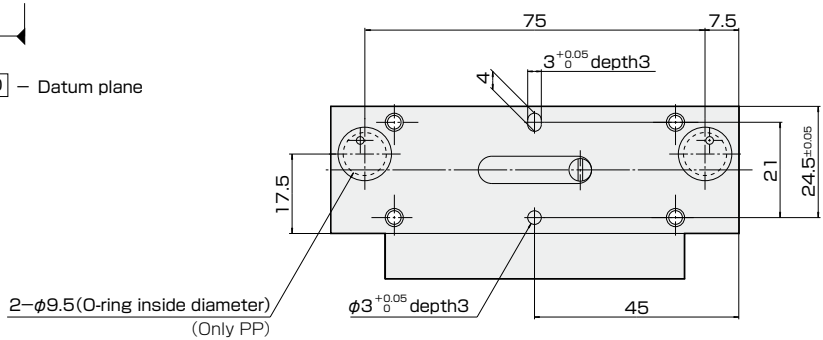






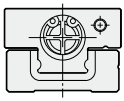
B D – Datum plane

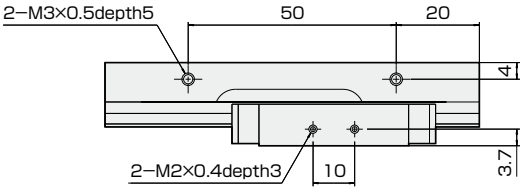




Without Magnet, Switch Rail

PPT−GT10−20−$\frac{TP}{PP}$

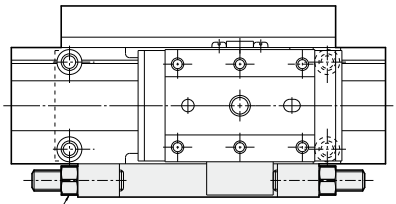


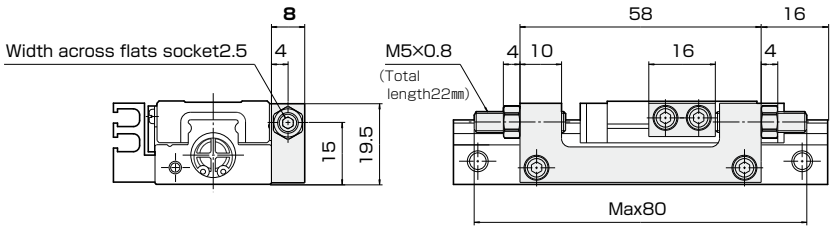


With Metal Stopper, with Rubber Stopper

PPT(S)−GT10−20−$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 7㎜ each





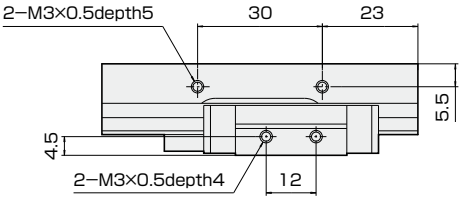
With Shock Absorber

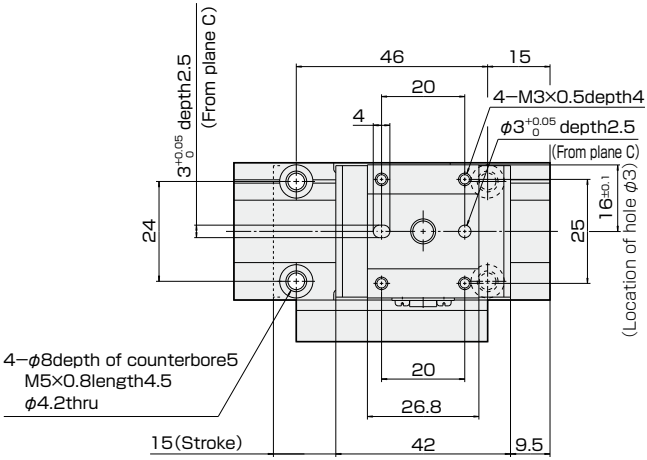
The shock absorber (QM) is NOT available for GT.
In this case, select SD only.

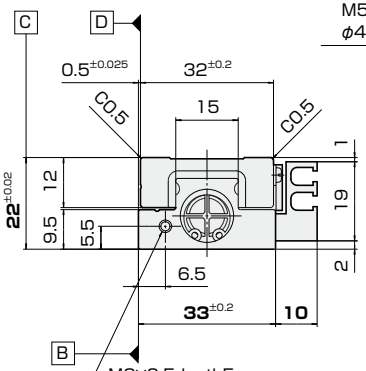
DIMENSIONS(mm) PPT12–15 BASIC

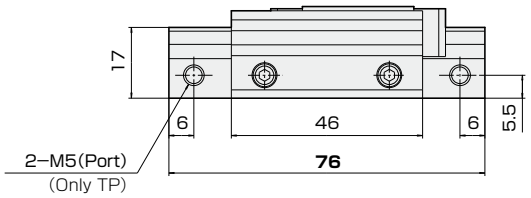
PPTS–SD12–15–TP / PP

- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

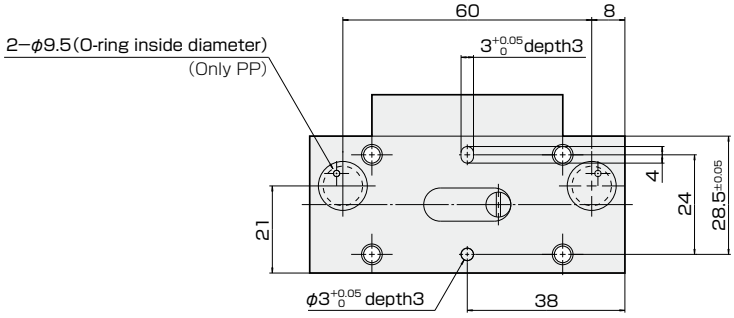






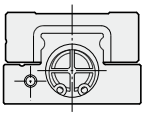


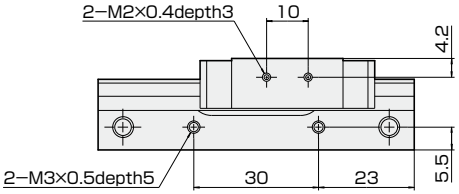
B D – Datum plane



Without Magnet, Switch Rail

PPT−SD12−15−$\frac{TP}{PP}$

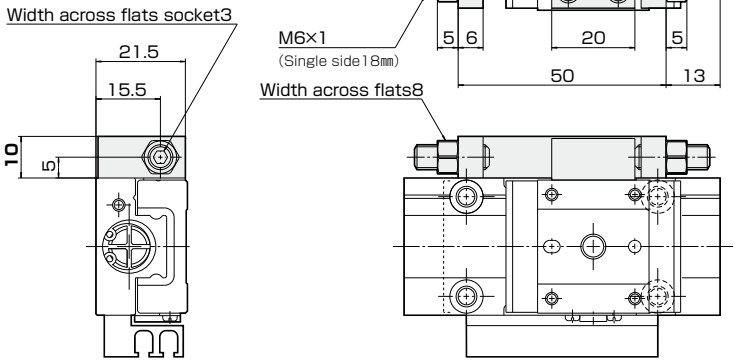




With Metal Stopper, with Rubber Stopper

PPT(S)−SD12−15−$\frac{TP\ QR}{PP\ QT}$

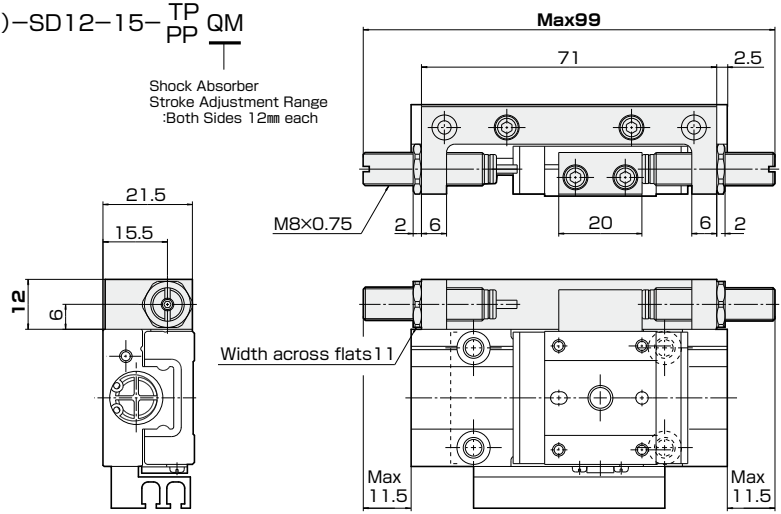
QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

PPT(S)−SD12−15−$\frac{TP}{PP}$ QM

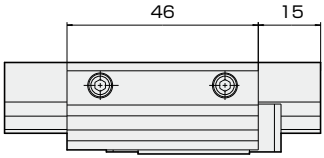
Shock Absorber
Stroke Adjustment Range
:Both Sides 12㎜ each

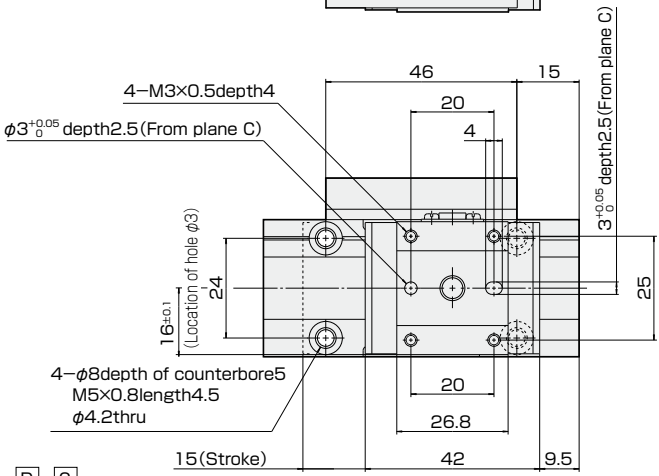


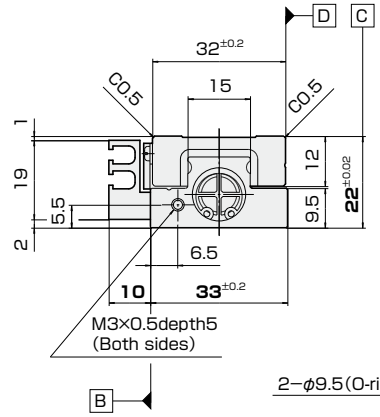
DIMENSIONS(mm) PPT12–15 SYMMETRIC

PPTS–GT12–15–TP/PP

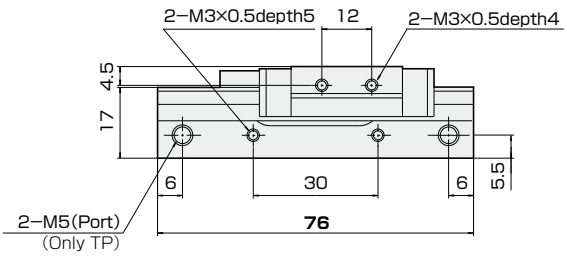
- Symmetric
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

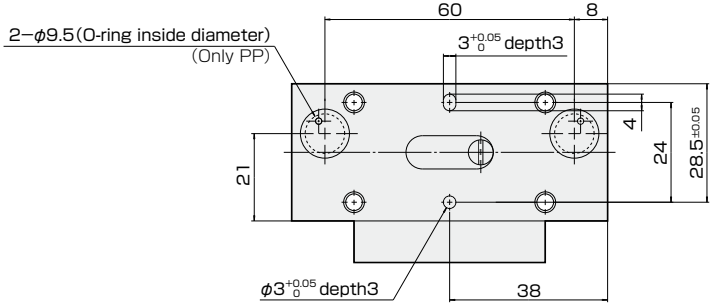






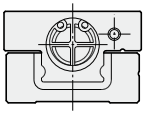
B D– Datum plane

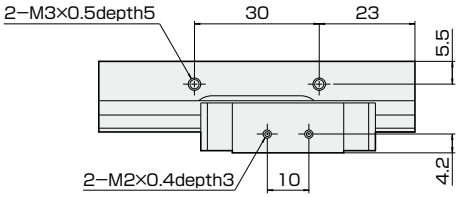




Without Magnet, Switch Rail

PPT−GT12−15−$\frac{TP}{PP}$

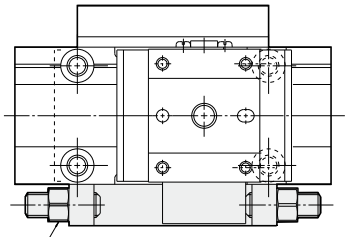


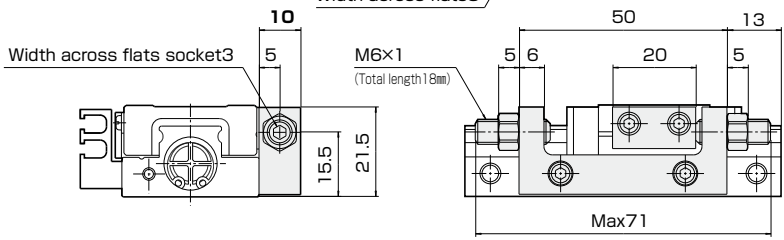


With Metal Stopper, with Rubber Stopper

PPT(S)−GT12−15−$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each





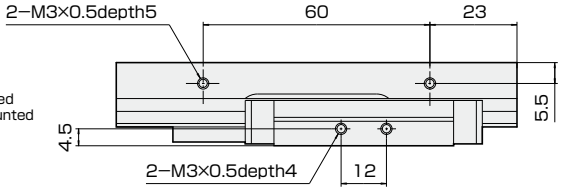
With Shock Absorber

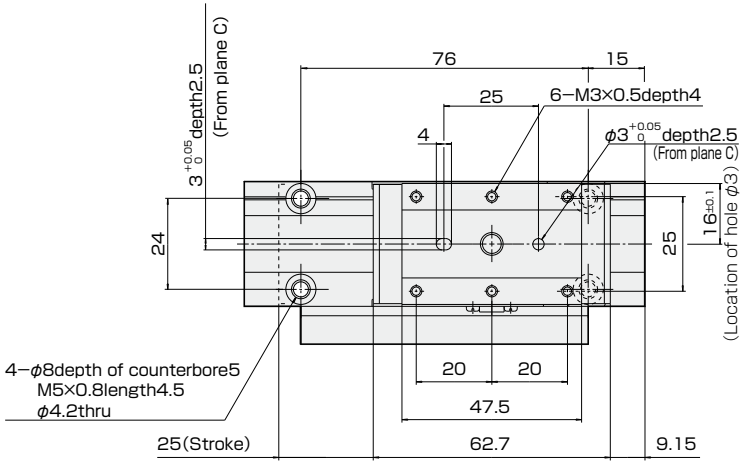
The shock absorber (QM) is NOT available for GT.
In this case, select SD only.

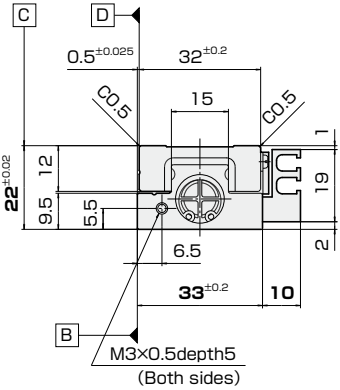
DIMENSIONS(mm) PPT12–25 BASIC

PPTS–SD12–25–TP/PP

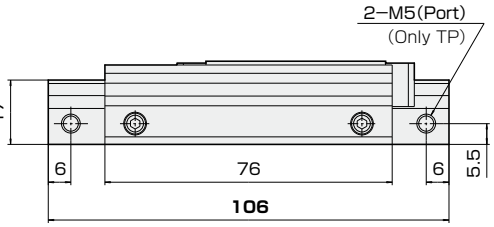
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

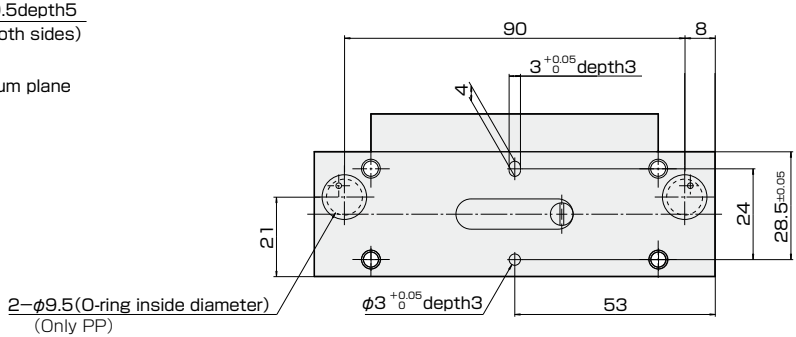






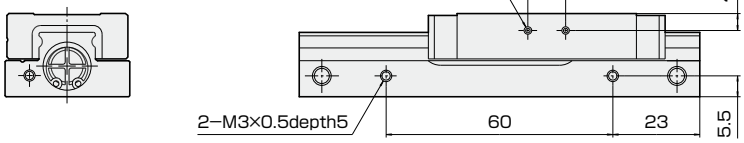
B D– Datum plane





Without Magnet, Switch Rail

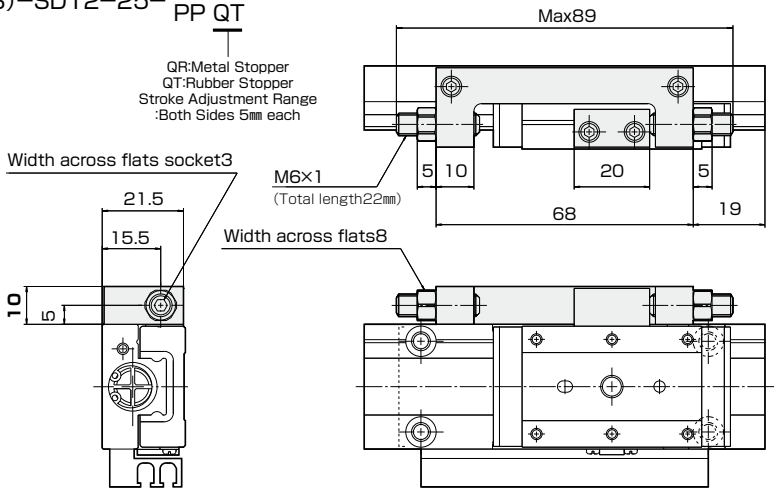
PPT−SD12−25−$\frac{TP}{PP}$



With Metal Stopper, with Rubber Stopper

PPT(S)−SD12−25−$\frac{TP\ QR}{PP\ QT}$

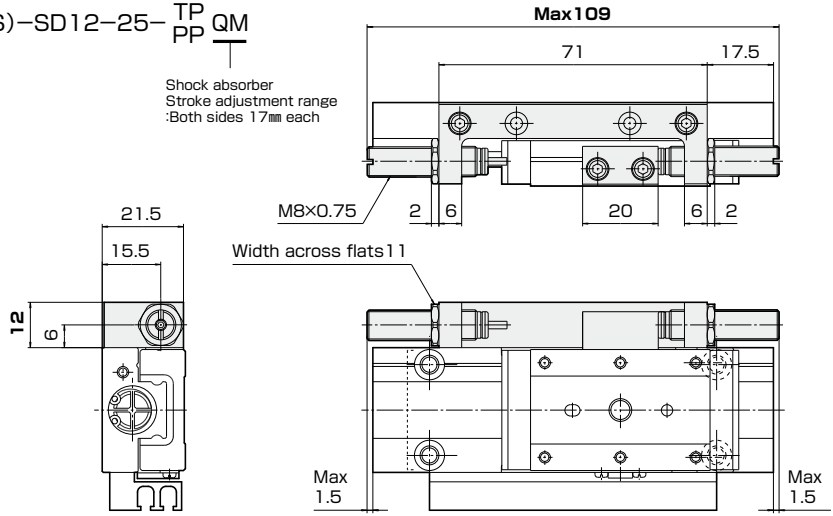
QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

PPT(S)−SD12−25−$\frac{TP}{PP}$ QM

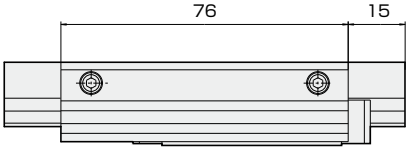
Shock absorber
Stroke adjustment range
:Both sides 17㎜ each

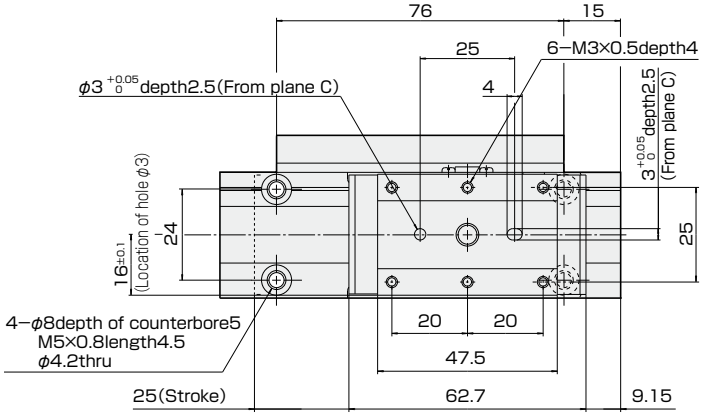


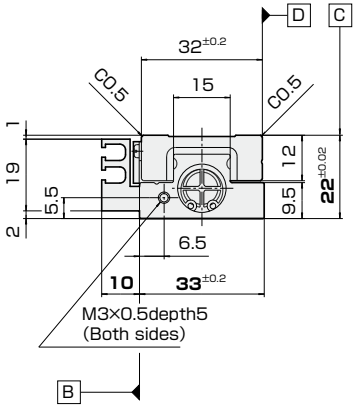
DIMENSIONS(mm) PPT12–25 SYMMETRIC

PPTS–GT12–25–TP / PP

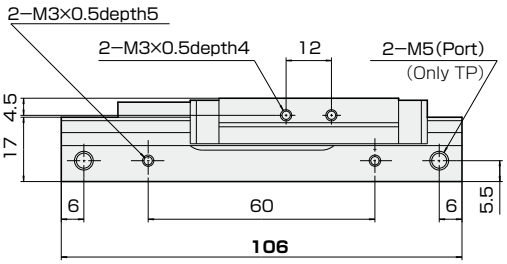
- GT: Symmetric
- 12: Bore Size
- 25: Stroke
- TP / PP: Piping
  - TP·····Side Ported
  - PP·····Base Mounted
- PPTS: With Magnet, Switch Rail

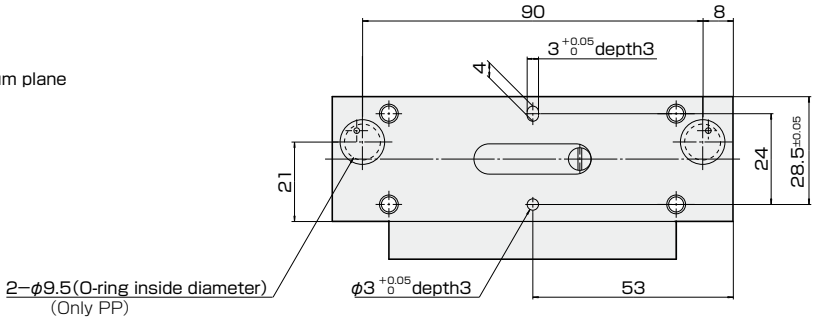






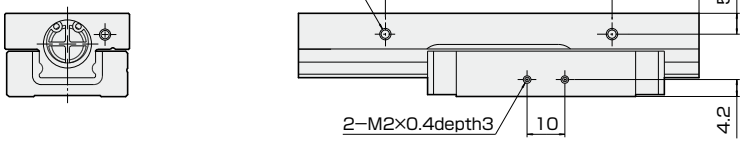
B D– Datum plane





Without Magnet, Switch Rail

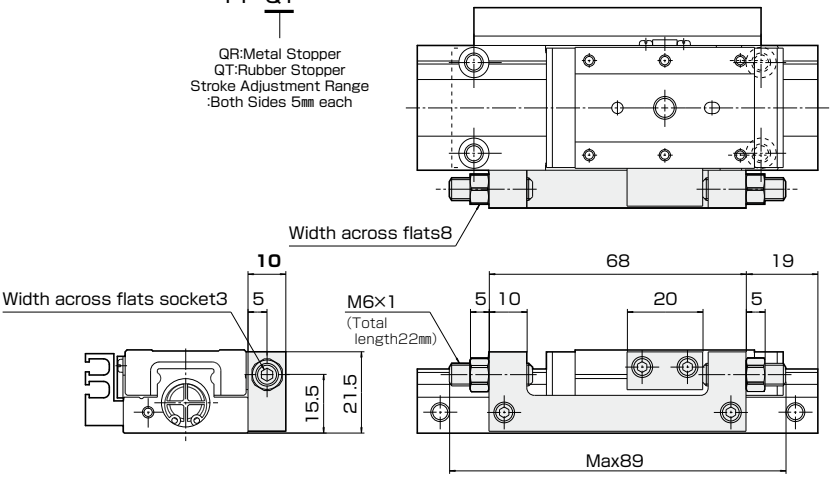
PPT−GT12−25−$\frac{TP}{PP}$



With Metal Stopper, with Rubber Stopper

PPT(S)−GT12−25−$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 5㎜ each



With Shock Absorber

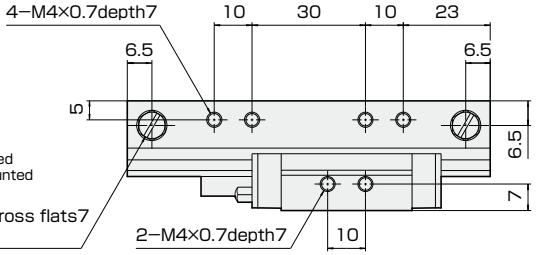
The shock absorber (QM) is NOT available for GT.☒
In this case, select SD only.

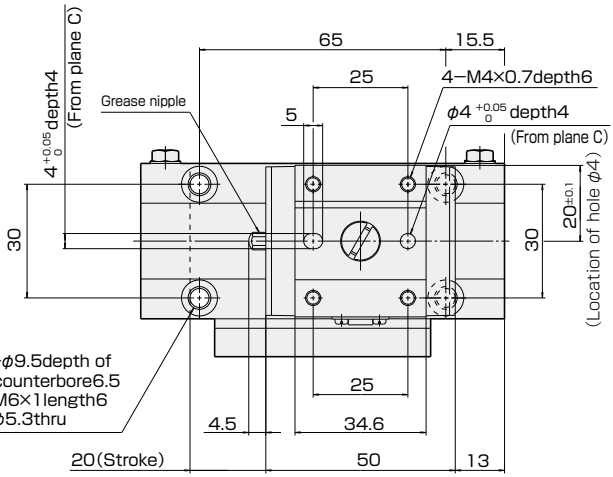
DIMENSIONS(mm) PPT16–20 BASIC

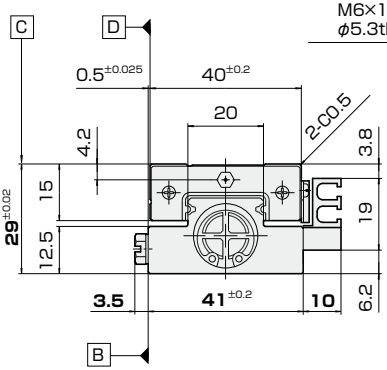
GT can be converted from SD by changing plug positions.

PPTS–SD16–20–TP / PP

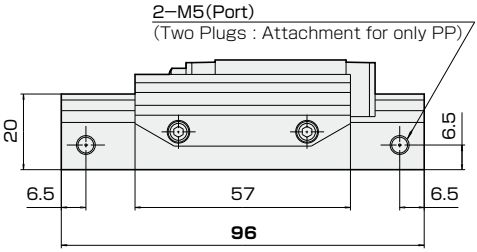
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping
  - TP·····Side Ported
  - PP·····Base Mounted

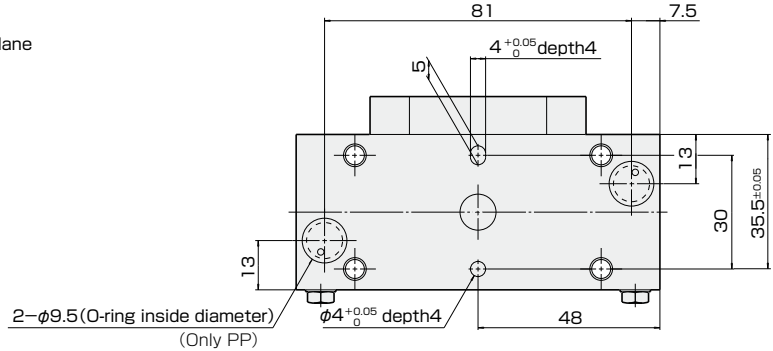






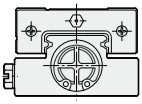
B D – Datum plane

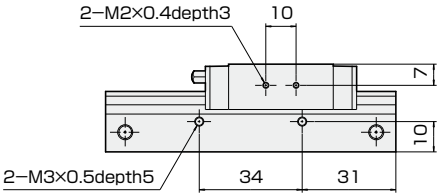




Without Magnet, Switch Rail

PPT−SD16−20−$\frac{TP}{PP}$

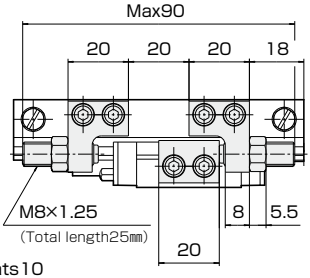


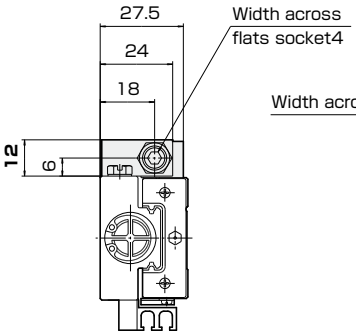


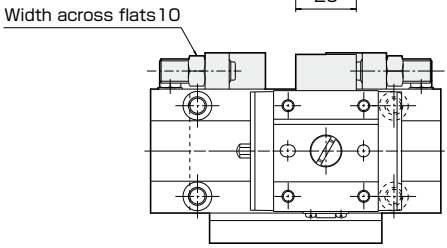
With Metal Stopper, with Rubber Stopper

PPT(S)−SD16−20−$\frac{TP\ QR}{PP\ QT}$

QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 10㎜ each



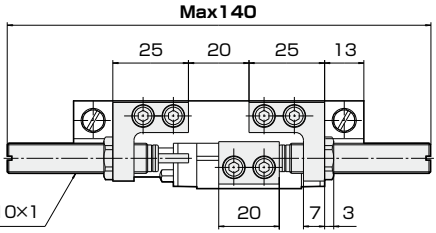


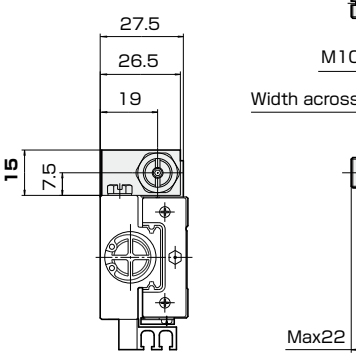


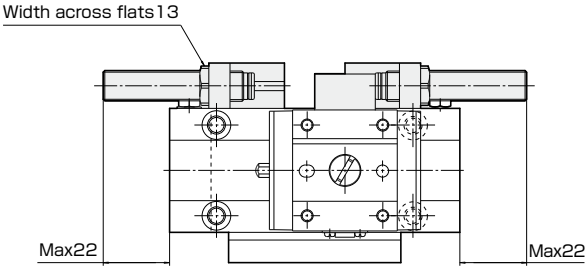
With Shock Absorber

PPT(S)−SD16−20−$\frac{TP}{PP}$ QM

Shock Absorber
Stroke Adjustment Range
:Both Sides 20㎜ each





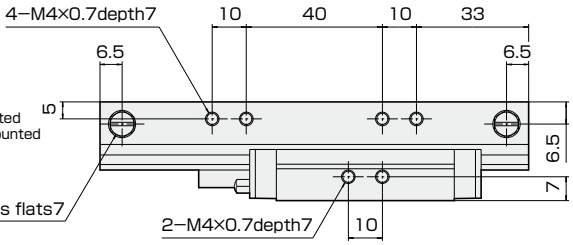


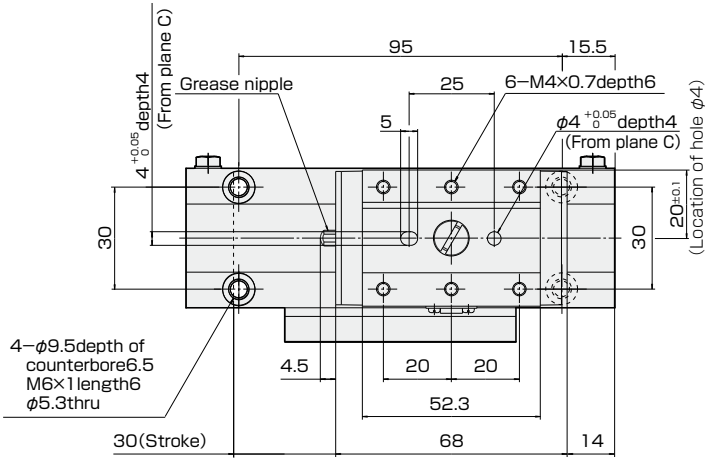
DIMENSIONS(mm) PPT16–30 BASIC

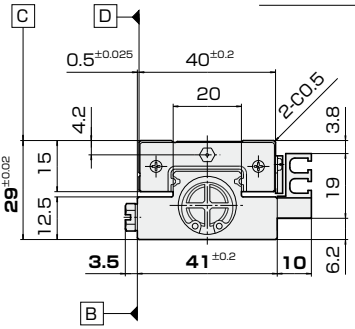
GT can be converted from SD by changing plug positions.

PPTS–SD16–30–TP / PP

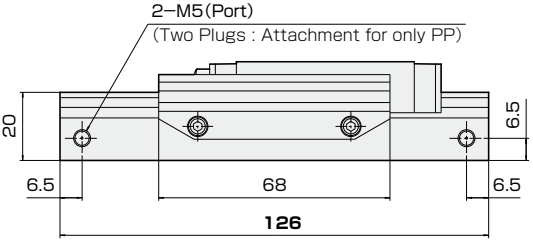
- Basic
- Bore Size
- With Magnet, Switch Rail
- Stroke
- Piping: TP·····Side Ported, PP·····Base Mounted

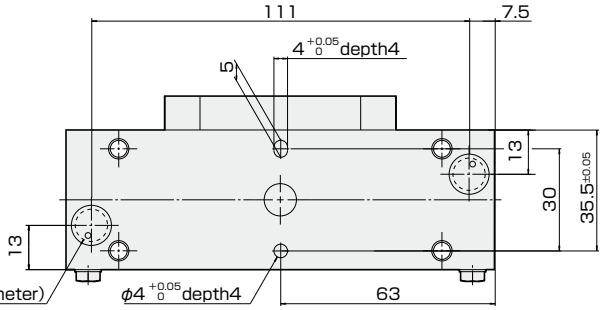






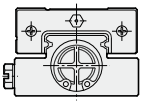
B D – Datum plane

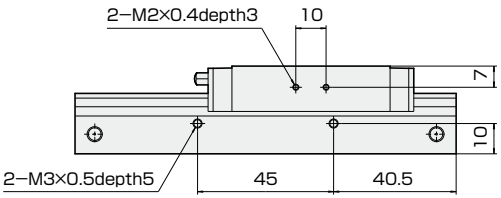




Without Magnet, Switch Rail

PPT−SD16−30−$\frac{TP}{PP}$

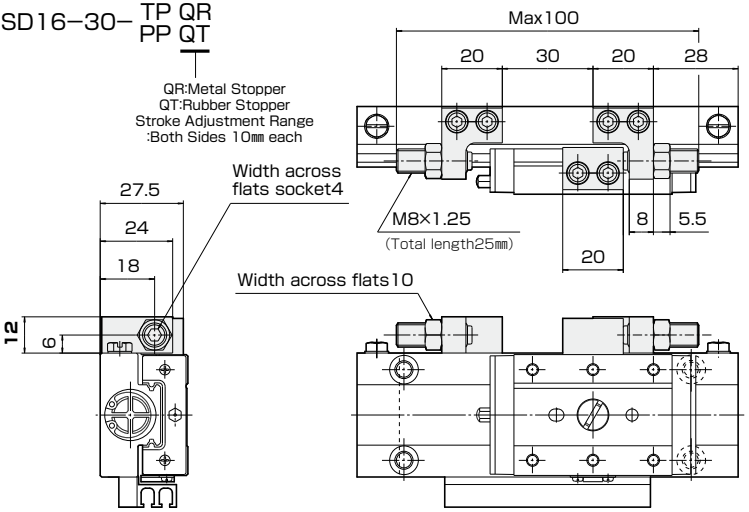




With Metal Stopper, with Rubber Stopper

PPT(S)−SD16−30−$\frac{TP\ QR}{PP\ QT}$

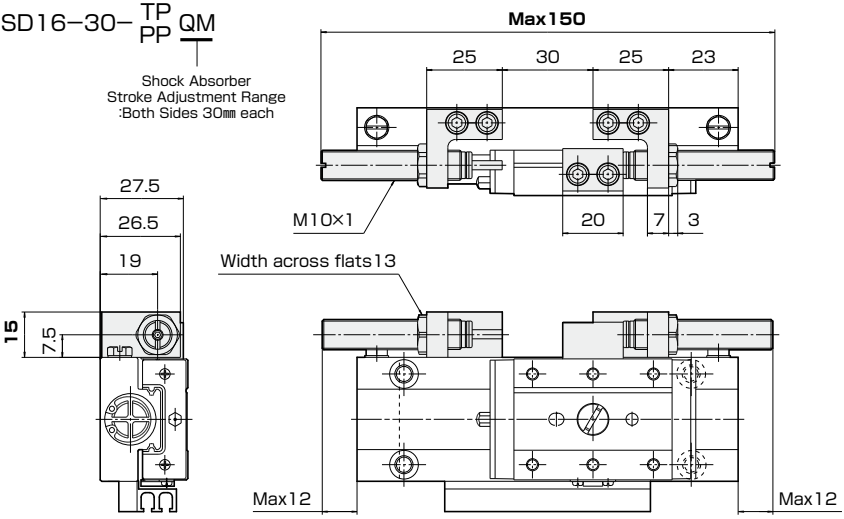
QR:Metal Stopper
QT:Rubber Stopper
Stroke Adjustment Range
:Both Sides 10㎜ each



With Shock Absorber

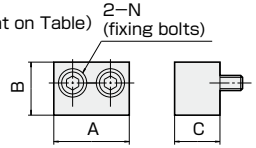
PPT(S)−SD16−30−$\frac{TP}{PP}$ QM

Shock Absorber
Stroke Adjustment Range
:Both Sides 30㎜ each



DIMENSION OF STROKE ADJUSTER

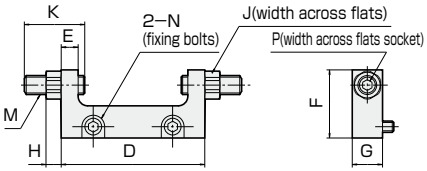
■Stopper Receiver (Mount on Table)



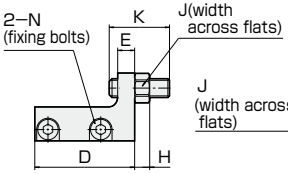
■Adjuster Block (Mount on Body)

●Metal Stopper, Rubber Stopper

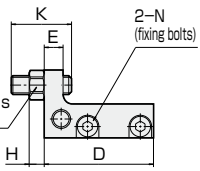
PPT8



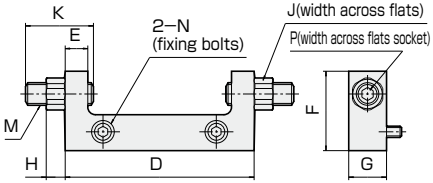
PPT–SD8–5



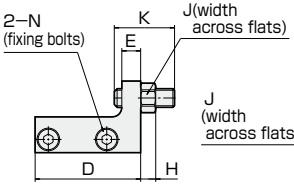
PPT–GT8–5



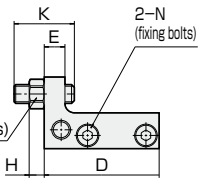
PPT10, 12



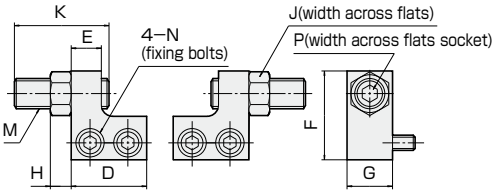
PPT–SD10–5



PPT–GT10–5



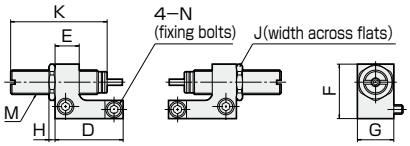
PPT16



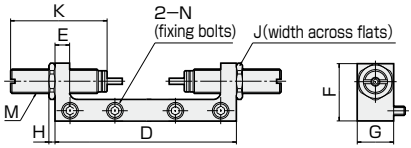
Model	A	B	C	D	E	F	G	H	J	K	M	N	P
PPT–SD8–5	15.5	8	9	26.5	4.5	18	8	4	7	16	M5×0.8	M3×0.5	2.5
PPT–GT8–5				29	5								
PPT8–10				38	4.5								
PPT8–20				49	5								
PPT–SD10–5	16	8	8	28	5	19	8	4	7	16	M5×0.8	M3×0.5	2.5
PPT–GT10–5				30.5	5.5								
PPT10–10				37	4.5								
PPT10–20				58	10					22			
PPT12–15	20	10	10	50	6	21	10	5	8	18	M6×1	M3×0.5	3
PPT12–25				68	10					22			
PPT16	20	14	12	20	8	23.5	12	5.5	10	25	M8×1.25	M4×0.7	4

●Shock Absorber

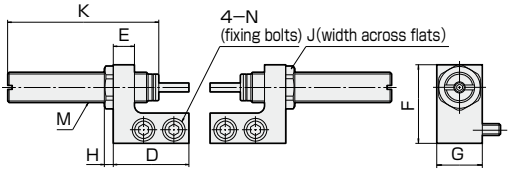
PPT8



PPT10, 12



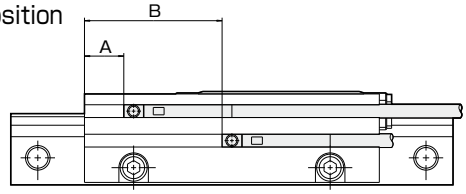
PPT16



Model	A	B	C	D	E	F	G	H	J	K	M	N	P
QM(PPT8)	15.5	8	9	22.5	8	18	12	2	11	32	M8×0.75	M3×0.5	–
QM(PPT10)	16		8	60	5	19							
QM(PPT12)	20		10	71	6	21							
QM(PPT16)			14	12	25	7	26	15	3	13	50	M10×1	M4×0.7	–

INSTALLATION OF SWITCH

■Switch Setting Position



RB1, RC1, RB2, RC2 Switch

Unit: mm

Model	Switch Setting Position		On Hold Distance (ℓ)	Hysteresis (c)
	A	B		
PPT6Y– 5	2	7	6	1
PPT6Y– 10	4	14		
PPT8 – 5	7.5	12.5		
PPT8 – 10	2	12		
PPT8 – 20	8	28		
PPT10– 5	8.5	13.5		
PPT10– 10	1	11		
PPT10– 20	11	31		
PPT12– 15	3.5	18.5		
PPT12– 25	13.5	38.5		
PPT16– 20	6.5	26.5		
PPT16– 30	7	37		

RB4, RC4, RB5, RC5 Switch

Unit: mm

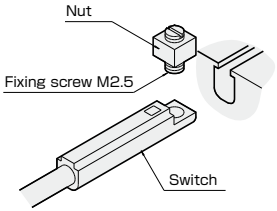
Model	Switch Setting Position		On Hold Distance (ℓ)	Hysteresis (c)
	A	B		
PPT6Y– 5	4	9	2.5	1
PPT6Y– 10	6	16		
PPT8 – 5	9.5	14.5		
PPT8 – 10	4	14		
PPT8 – 20	10	30		
PPT10– 5	10.5	15.5		
PPT10– 10	3	13		
PPT10– 20	13	33		
PPT12– 15	5.5	20.5		
PPT12– 25	15.5	40.5		
PPT16– 20	8.5	28.5		
PPT16– 30	9	39		

Explanation of hysteresis and on hold distance. ☞ page 1084

In case of elbow tube fitting as a kind of speed controller is used, they may not turn their outlet position because of interference with the switch rail or stroke adjuster.

■Installataion 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 torgue of fixing screw must be 0.1 N·m.



Costom 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 part is lithium soap grease or fluorine grease.
●Grease of purchased item can not be exchanged.

Please ask us for more detailed infomation.

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