

LINEAR GUIDE + TWIN ROD PST-NS Series

High Precision,
High Solidity
+ High power



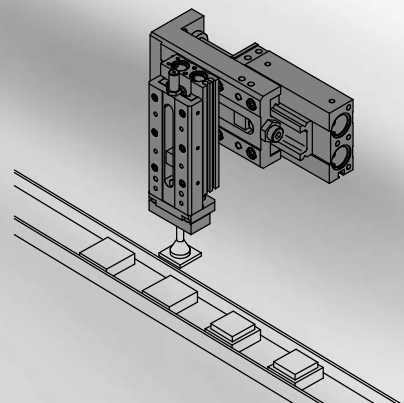
Cylinder Size: Ø6, Ø8, Ø12, Ø16, Ø20, Ø25
Stroke: 5 ~150mm
Position Accuracy: ± 0.01 mm

Application

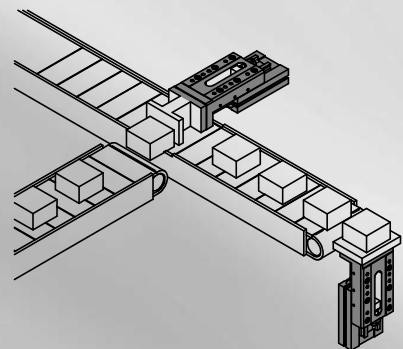
Applied to the precision feed of small-size work piece and IC chip, precise press-in, and position reversing in semiconductor, LCD manufacturing process line, SMT line, etc.

- Inventive patent registration: 1
- Utility model registration: 1
- Utility model application: 1

Application 1

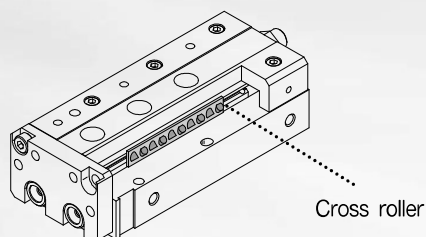


Application 2



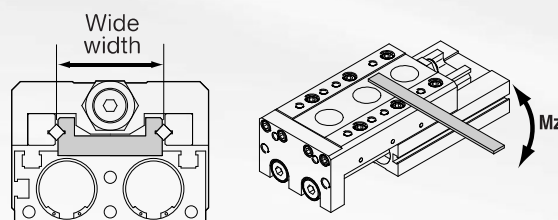
Cross Roller Guide

- Linear feed guide by the cross array of roller bearings
- High-accuracy, High-solidity structure without attach guide separately



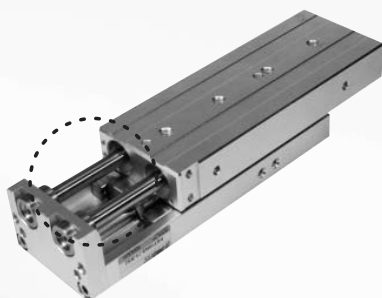
Wide type Slider Guide structure

- High-solidity structure by expanding the support point of roller bearing in slider
- Reduced degree of swing with the drastic increase of rolling moment



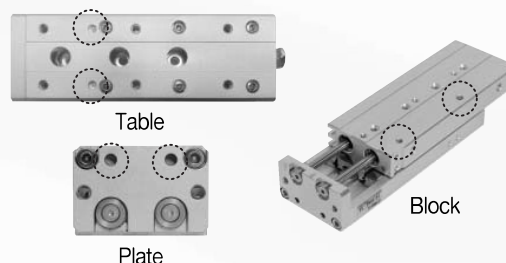
High-powered twin cylinder

- Double power than the typical type cylinder with 2 cylinders arranged in parallel



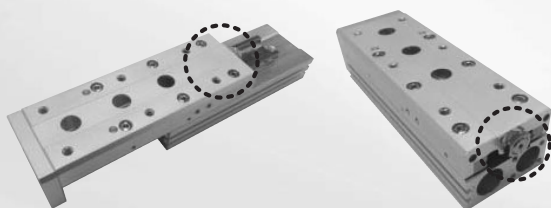
Positioning hole for the reproducibility of installation

- Positioning holes on Plate, Table and Block for further reinstallation when installing/removing the product



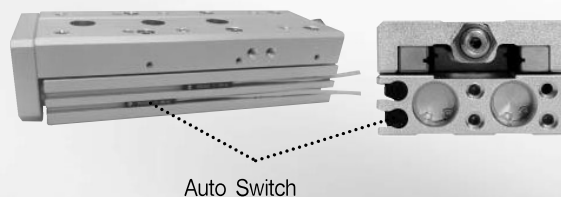
Center Stopper structure

- Forward stage control stopper placed at the center, utilizing side space
- Reducing crash moment of forward motion, it is possible to make stable and precise linear motion



Auto Switch for the detection of position

- No projection when mounting Auto Switches, seated internally





Individual notes for PST-NS Series ①

⚠ Caution

- Be careful to protect “V” groove from damage which the cross roller is rubbed on slide rail and guide.
- Be careful to avoid any finger jam when cylinder is in operation.
- Be careful not to cause scratch or shock on the mounting surfaces of cylinder body, slide table, and end plate.

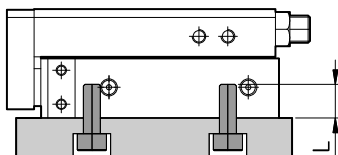
Damage in mounting surfaces makes worse the flatness, and cause work failure due to the increased swing of guide unit and friction resistance.

- Install screw to the cylinder and tighten it to the specified torque.

Otherwise, it may cause defect in working. Also, insufficient screw tightening may cause dislocation or work pieces to drop.

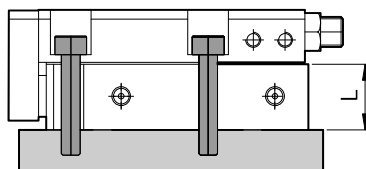
PST-NS Series various installation style

1. Using Cylinder body tap



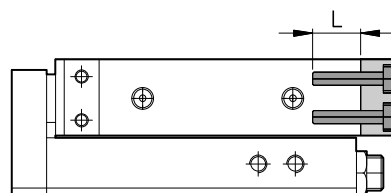
Specification	Bolt	Specified tightening torque (kgf · cm)	Maximum screw length L (mm)
PST-06NS	M4 × 0.7	25	8
PST-08NS	M4 × 0.7	25	10
PST-12NS	M5 × 0.8	51	15
PST-16NS	M6 × 1	81	15
PST-20NS	M6 × 1	81	20
PST-25NS	M8 × 1.25	157	25

2. Using Cylinder penetration hole



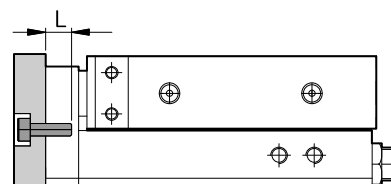
Specification	Bolt	Specified tightening torque (kgf · cm)	Maximum screw length L (mm)
PST-06NS	M3 × P0.5	11	10
PST-08NS	M3 × P0.5	11	11.5
PST-12NS	M4 × P0.7	25	16.5
PST-16NS	M5 × P0.8	51	20.5
PST-20NS	M5 × P0.8	51	24.5
PST-25NS	M6 × P1	81	30.5

3. Using Cylinder body tap



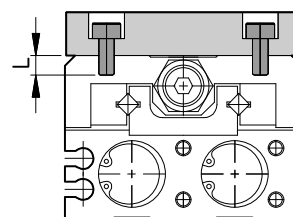
Specification	Bolt	Specified tightening torque (kgf · cm)	Maximum screw length L (mm)
PST-06NS	M2.5 × 0.45	4.9	3.5
PST-08NS	M3 × 0.5	11	4
PST-12NS	M3 × 0.5	11	6
PST-16NS	M4 × 0.7	25	10
PST-20NS	M5 × 0.8	51	10
PST-25NS	M6 × 1	81	10

4. Using plate front tap



Specification	Bolt	Specified tightening torque (kgf · cm)	Maximum screw length L (mm)
PST-06NS	M3 × 0.5	11	5.5
PST-08NS	M4 × 0.7	25	6
PST-12NS	M5 × 0.8	51	8
PST-16NS	M6 × 1	81	10
PST-20NS	M6 × 1	81	13
PST-25NS	M8 × 1.25	157	15

5. Using table tap



Specification	Bolt	Specified tightening torque (kgf · cm)	Maximum screw length L (mm)
PST-06NS	M3 × 0.5	11	3.5
PST-08NS	M3 × 0.5	11	5
PST-12NS	M4 × 0.7	25	5.5
PST-16NS	M5 × 0.8	51	6
PST-20NS	M5 × 0.8	51	11
PST-25NS	M6 × 1	81	13



Individual notes for PST-NS Series ②

⚠ Caution

- Do not exceed the specified load when selecting the product.

Select model based on the specified maximum load factor according to each Bore size. Otherwise, it may result in

Notes in selection

distorted load of the guide unit, which may cause swing to guide unit, deterioration, and adverse effects on cylinder life.

- Avoid excessive external force or shock.

⚠ Caution

Notes in operating environment and handling

- Be careful of using in the place where vibration or shock occurs frequently, it may cause a failure.

- Be care of corrosion resistance for the stability in cross roller guide unit.

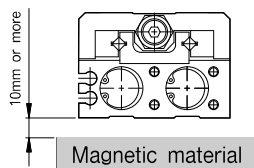
Be care of corrosion resistance in humid environment as water drop can be created in guide unit and it can get rusty in such environment.

- When used around heat source of high temperature, product can be heated by radiant heat and cause failure. Therefore, install protective covers to block heat source.

- Do not use in the environment that can be affected by foreign substances such as dust and chip, and cutting oil.

It may cause vibration, increase of frictional resistance, and air leakage. In such environment, please install appropriate protective covers after the consultation with our company.

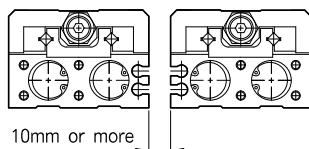
- When there are magnetic materials like steel plate near the switch of cylinder, most likely they may cause malfunction in the switch, therefore they need to be designed and installed with sufficient clearance from the surface of cylinder (maintain 10mm or more)



- Always use stainless bolts when mounting auto switch to cylinder in order to prevent switch malfunction. If unavoidable, use commercial bolts after removing the magnetic properties.

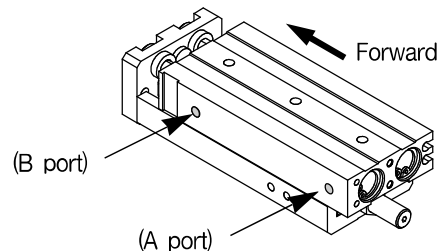
- When installing symmetrical cylinders, too much close may lead to malfunction in the switch of cylinder. Therefore keep sufficient clearance (maintain 10mm or more).

Notes when installing symmetrical cylinders



- In the feed of Forward stage at low-speed of 100mm/sec or less of cylinder speed, connecting meter-in speed controller to A port, and meter-out speed controller to B port allow softer control in constant speed.

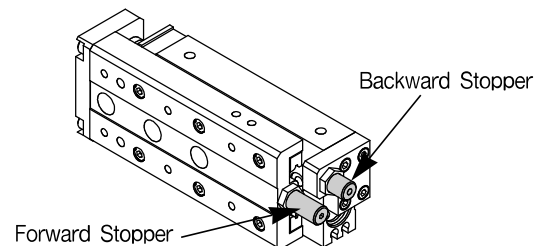
Supplying air to forward stage A port during cylinder operation at low-speed creates stick slip in the beginning and makes cylinder control in constant speed more difficult. Install appropriate speed controller for soft control.



- You can use various cylinder stroke-adjusting unit in product installation.

Cylinder stopper unit can be diversified according to its usage purpose into 3 types of different cushion devices.

- Urethane stopper: generalized stroke adjust unit (Allowable speed 50~500mm/sec)
- Metal stopper: It may improve the precise control of stroke, but doesn't have cushion function, so it is used only for light load and low-speed. As it is special order item, please contact us for further discussion. (speed 50~200mm/sec)
- Shock Absorber: Soft stop by absorbing the shock at the end of stroke



PST-NS Series

Features



- High-precision Linear Actuator integrated with Cross Roller Guide on top of dual cylinder
- Easy stroke control by positioning forward & backward stopper function at the rear side
- Positioning holes for attachment (3 places)
- Diversity of installation (in 4 directions)
- Suitable for assembling precision work pieces
- Auto Switch for the detection of position can be attached

Order form

PST 06NS - 10 - M - A2 S - ST

① ② ③ ④ ⑤ ⑥ ⑦

① Series

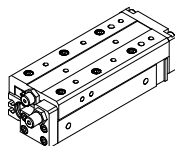
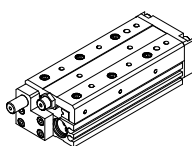
②, ③ Bore size & Stroke(mm)

②Name	Bore size(mm)	③Stroke(mm)
06NS	6	5,10,20,30,40,50
08NS	8	10,20,30,40,50,75
12NS	12	10,20,30,40,50,75,100
16NS	16	10,20,30,40,50,75,100,125
20NS	20	10,20,30,40,50,75,100,125,150
25NS	25	10,20,30,40,50,75,100,125,150

⑤ Auto Switch type

Symbol	Type	Length	Applied cylinder
A1	DSC PRO-A1	1m	PST20NS 25NS
A1L	(2-wire)	3m	
B1	PLC PRO-B1	1m	PST06NS
B1L	(3-wire)	3m	
A2	DSC PRO-A2	1m	08NS
A2L	(2-wire)	3m	
B2	PLC PRO-B2	1m	12NS
B2L	(3-wire)	3m	

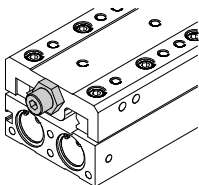
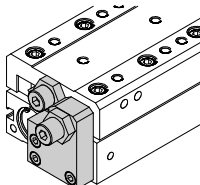
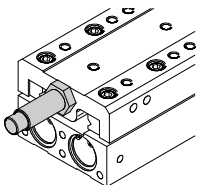
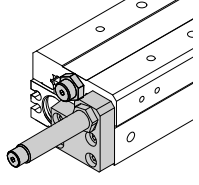
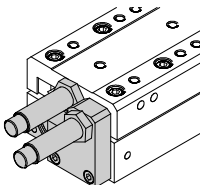
④ Symmetrical specification

Blank	M
Standard type	Symmetrical
	

⑥ Auto Switch quantity

Blank	2ea
S	1ea

⑦ Stroke adjusting stopper specification

Blank	ST	SHF	SHB	SH2
Forward Stopper (Urethane cushion)	Back & forward Stopper (Urethane cushion)	Forward Shock Absorber	Backward Shock Absorber	Back & forward Shock Absorber
				

*Please refer P272~P273 for checking Shock absorber and backward stopper installation.



Specification

Model		PST06NS	PST08NS	PST12NS	PST16NS	PST20NS	PST25NS
Bore size(mm)		6	8	12	16	20	25
Rod(mm)		3	4	6	8	10	12
Stroke(mm)		5 ~ 50	10 ~ 75	10 ~ 100	10 ~ 125	10 ~ 150	10 ~ 150
Theoretical thrust(kgf)	Forward	$0.57 \times P$	$1.1 \times P$	$2.26 \times P$	$4.02 \times P$	$6.28 \times P$	$9.82 \times P$
	Backward	$0.42 \times P$	$0.75 \times P$	$1.70 \times P$	$3.02 \times P$	$4.71 \times P$	$7.56 \times P$
Air port size		M3	M5	M5	M5	M5	M5
Max. load(kgf)		0.6	1	2.4	4.3	6.7	10.7
Fluid		Clean air Note 1)					
Air pressure(kgf/cm ²)		1.5 ~ 7 (General resistance pressure: 10.5) Note 3)					
Lubrication		No need (if need, use one sort of turbine oil: SPEC ISOVG 32)					
Temperature(°C)		5 ~ 60					
Motion speed(mm/sec)		50 ~ 500					
Motion type		Double-acting type					
Positioning Accuracy(mm)		± 0.01					
Stroke allowable tolerance in forward(mm)		0 ~ +1					

Note 1) Clean air: Fresh air containing solid matters with 0.3% of supersaturated moisture and 99.9% of liquid oil that passed through the 3~10 μ m degree of filtering

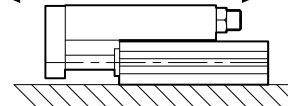
Note 2) P: Air pressure(kgf/cm²)

Note 3) Guaranteed capacity of resist pressure: A pressure that does not cause an abnormality in parts when it is applied for 1 minute without any weight loaded.

Main body weight

Model	Stroke(mm)	5	10	20	30	40	50	75	100	125	150
PST06NS		0.07	0.08	0.11	0.12	0.17	0.19	-	-	-	-
PST08NS		-	0.16	0.17	0.2	0.25	0.3	0.43	-	-	-
PST12NS		-	0.32	0.32	0.32	0.39	0.49	0.69	0.92	-	-
PST16NS		-	0.58	0.58	0.58	0.66	0.8	1.15	1.45	1.8	-
PST20NS		-	0.99	0.99	0.99	1.15	1.29	1.7	2.24	2.79	3.35
PST25NS		-	1.71	1.71	1.71	1.9	2.15	2.75	3.39	4.28	4.89

Forward direction ← → Backward direction



Unit : kgf

Theoretical thrust

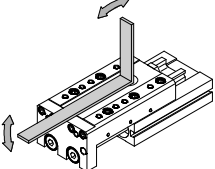
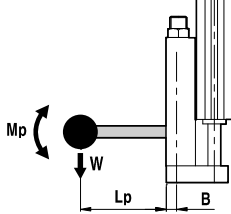
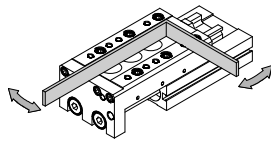
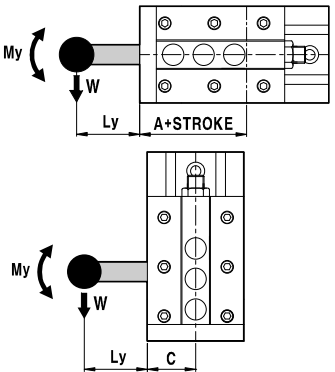
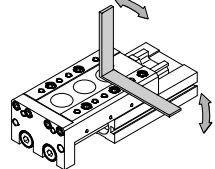
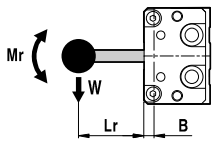
Model	Operation direction (refer to the figure)	Pressuring dimension (mm)	Air pressure(kgf/cm ²)					
			2	3	4	5	6	7
PST06NS	Forward	57	1.14	1.71	2.28	2.85	3.42	3.99
	Backward	42	0.84	1.26	1.68	2.1	2.52	2.94
PST08NS	Forward	110	2.2	3.3	4.4	5.5	6.6	7.7
	Backward	75	1.5	2.25	3	3.75	4.5	5.25
PST12NS	Forward	226	4.52	6.78	9.04	11.3	13.5	15.8
	Backward	170	3.4	5.1	6.8	8.5	10.2	11.9
PST16NS	Forward	402	8.04	12	16	20.1	24.1	28.1
	Backward	302	6.04	9.06	12	15.1	18.1	21.1
PST20NS	Forward	628	12.5	18.8	25.1	31.4	37.6	43.9
	Backward	471	9.42	14.1	18.8	23.5	28.2	32.9
PST25NS	Forward	982	19.6	29.4	39.2	49.1	58.9	68.7
	Backward	756	15.1	22.6	30.2	37.8	45.3	52.9

PST-NS Series

Technical data by model

■ Mp, My, Mr 3 directions moment calculation formula

Fig1

Pitch Moment(Mp)	Yawing Moment(My)	Rolling Moment(Mr)
 	 	 
$M_p = W \times (A + \text{STROKE} + L_p)$ $M_p = W \times (B + L_p)$	$M_y = W \times (A + \text{STROKE} + L_y)$ $M_y = W \times (C + L_y)$	$M_r = W \times (C + L_r)$ $M_r = W \times (B + L_r)$

※ W : Work weight(kgf)

■ Corrections from the central distance of moments

Table1

Unit : mm

Model	Corrections Stroke	A									B	C	
		5	10	20	30	40	50	75	100	125			150
	PST06NS	22	19	19	19	25	28	-	-	-	-	6	16
	PST08NS	-	23	21	21	26	30	42	-	-	-	8.5	20
	PST12NS	-	36	31	26	27	32	42	57	-	-	9.5	23
	PST16NS	-	39	34	29	29	32	44	56	68	-	13.5	28
	PST20NS	-	44	39	34	34	37	44	57	72	86	17.5	34
	PST25NS	-	50	45	40	40	42	50	58	74	82	21.5	41

■ Maximum allowable moment

Table2

Unit : kgf · cm

Stroke		5	10	20	30	40	50	75	100	125	150
Model											
PST06NS	Mp	2.39	2.39	3.58	3.58	5.38	5.97	-	-	-	-
	My	2.39	2.39	3.58	3.58	5.38	5.97	-	-	-	-
	Mr	5.04	5.04	7.06	7.06	10	11.09	-	-	-	-
PST08NS	Mp	-	3.58	3.58	4.18	4.78	6.57	8.96	-	-	-
	My	-	3.58	3.58	4.18	4.78	6.57	8.96	-	-	-
	Mr	-	8.73	8.73	9.98	11.2	14.9	19.9	-	-	-
PST12NS	Mp	-	10.9	10.9	10.9	12.7	16.3	23.6	27.3	-	-
	My	-	10.9	10.9	10.9	12.7	16.3	23.6	27.3	-	-
	Mr	-	26.3	26.3	26.3	30.1	37.6	52.7	60.2	-	-
PST16NS	Mp	-	14.5	14.5	14.5	14.5	16.3	23.6	32.7	40	-
	My	-	14.5	14.5	14.5	14.5	16.3	23.6	32.7	40	-
	Mr	-	42.7	42.7	42.7	42.7	47.5	66.5	90.2	109	-
PST20NS	Mp	-	33.2	33.2	33.2	33.2	39.8	53.1	79.7	86.4	93
	My	-	33.2	33.2	33.2	33.2	39.8	53.1	79.7	86.4	93
	Mr	-	93.3	93.3	93.3	93.3	108.9	140	202	217	233
PST25NS	Mp	-	59.6	59.6	59.6	74.5	89.4	104	134	178	208
	My	-	59.6	59.6	59.6	74.5	89.4	104	134	178	208
	Mr	-	173	173	173	208	242	277	346	450	520

■ Maximum allowable kinetic energy (Ea) **Table3** Unit : kgf · cm

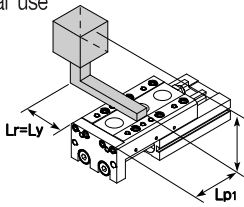
Model	Allowable kinetic energy	Stopper type	
		Urethane cushion	Shock Absorber
PST06NS		0.12	-
PST08NS		0.19	0.5
PST12NS		0.63	0.9
PST16NS		1.2	1.8
PST20NS		1.8	3.4
PST25NS		2.2	4.7

■ Maximum allowable load (Wa) **Table4** Unit : kgf

Model	Max. load
PST06NS	0.6
PST08NS	1
PST12NS	2.4
PST16NS	4.3
PST20NS	6.7
PST25NS	10.7

※ For vertical installation, load check is not required.

Model selection method

		Applied formula	Selection example
Condition check		■ Cylinder Model selection ■ Average speed ■ Cushion type (urethane/absorber) ■ Loaded Weight ■ Distance to the center of gravity in load ■ Block installation ■ Load installation	Review target: PST12NS-50 Table installation, horizontal use Urethane cushion Average speed: V=300mm/sec Loading factor W=0.5kgf Lp1 = 30mm Lp2 = 40mm Ly, Lr = 20mm
		Horizontal installation Vertical installation Plate installation Table installation	
Kinetic energy check	- The kinetic energy of load should be within the allowable kinetic energy range of cylinder.	Work kinetic energy(kgf・cm) : $E=K_1 \times \frac{1}{2} \times \frac{W}{980} \times (\frac{1.4V}{10})^2$ W : work weight(kgf) V : average speed(mm/sec) K_1 : installation factor(Table installation: 1, Plate installation: 1.6) Ea : cylinder allowable kinetic energy(kgf・cm) Table3 Applicable only if E < Ea	$E = 1 \times \frac{1}{2} \times \frac{0.5}{980} \times (\frac{1.4 \cdot 300}{10})^2 = 0.45 \text{ kgf} \cdot \text{cm}$ Ea = 0.63 kgf・cm Available as E(0.45) < Ea(0.63)
Load factor check	Loading factor	Suitable loading factor(kgf) : $Wt = K_1 \times K_2 \times W$ θ_1 : Loading factor = $\frac{Wt}{Wa}$ W : work Weight(kgf) K_1 : installation factor(Table installation: 1, Plate installation: 1.6) K_2 : speed factor(300mm/sec or less: over 1, 300mm/sec: 1.6) Wa : cylinder Max. load(kgf) Table4	$Wt = 1 \times 1 \times 0.5 = 0.5 \text{ kgf}$ $Wa = 2.4 \text{ kgf}$ $\theta_1 = \frac{0.5}{2.4} = 0.21$
	Static moment	Pitching moment(kgf・cm) : $Mp = W \times (A + \text{Stroke} + Lp1) / 10$ Rolling moment(kgf・cm) : $Mr = W \times (C + Lr) / 10$ θ_2 : pitching Static moment load factor = $\frac{Mp}{Mpa}$ θ_3 : rolling Static moment load factor = $\frac{Mr}{Mra}$ A,C : corrections from the center distance of moments(mm) Table1 Lp, Lr : distance from the end of table to the center of load(mm) Fig1 Mpa, Mra : cylinder allowable moment(kgf・cm) Table2	$Mp = 0.5 \times \frac{(32+50-30)}{10} = 2.6 \text{ kgf} \cdot \text{cm}$ $\theta_2 = \frac{2.6}{16.3} = 0.16$ $Mr = 0.5 \times \frac{(23+20)}{10} = 2.15 \text{ kgf} \cdot \text{cm}$ $\theta_3 = \frac{2.15}{37.6} = 0.06$
	Dynamic moment	Pitching moment(kgf・cm) : $Mp = K_2 \times K_3 \times W \times (B + Lp2) / 10$ yawing moment(kgf・cm) : $My = K_2 \times K_3 \times W \times (C + Ly) / 10$ θ_4 : pitching dynamic moment load factor = $\frac{Mp}{Mpa}$ θ_5 : yawing dynamic moment load factor = $\frac{My}{Mya}$ K_2 : speed factor(300mm/sec or less: over 1,300mm/sec: 1.6) K_3 : duty factor(Urethane stopper: 1, shock absorber: 0.25) B,C : corrections from the center distance of moments(mm) Table1 Lp, Ly : distance from the end of table to the center of load(mm) Fig1 Mpa, Mya : cylinder allowable moment(kgf・cm) Table2	$Mp = 1 \times 1 \times 0.5 \times \frac{(9.5+40)}{10} = 2.5 \text{ kgf} \cdot \text{cm}$ $\theta_4 = \frac{2.5}{16.3} = 0.16$ $My = 1 \times 1 \times 0.5 \times \frac{(23+20)}{10} = 2.15 \text{ kgf} \cdot \text{cm}$ $\theta_5 = \frac{2.15}{16.3} = 0.13$
Total load factor		$\theta_t = \theta_1 + \theta_2 + \theta_3 + \theta_4 + \theta_5 \leq 1$	$\theta_t = 0.21 + 0.16 + 0.06 + 0.16 + 0.13 = 0.72 \leq 1$ PST12NS-50 is applicable

Note1) Static moment load factor: moment created by the gravity of work

Dynamic moment load factor: moment created when the work is stopped by stopper

PRECISION

PST-NS

PST

SC

ST

STS-L

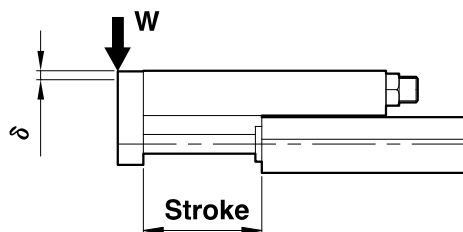
SD

PSW

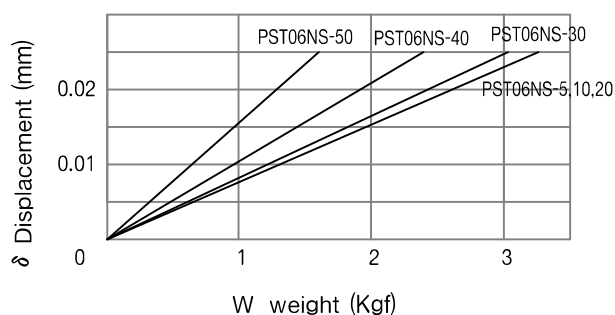
PST-NS Series

Table deflection

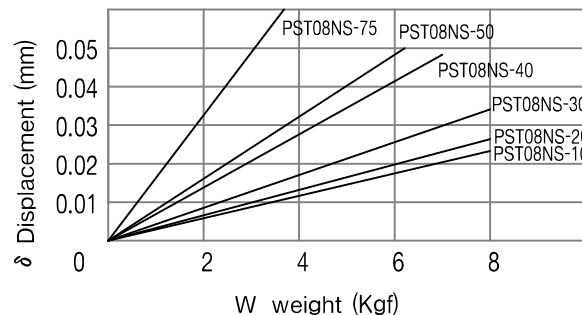
- The graph represents the deflection if any static load is applied at the end of table when moved forward as much as the corresponding stroke.
- The deflections below mentioned are only for a reference. (Please note that they are NOT maximum value).



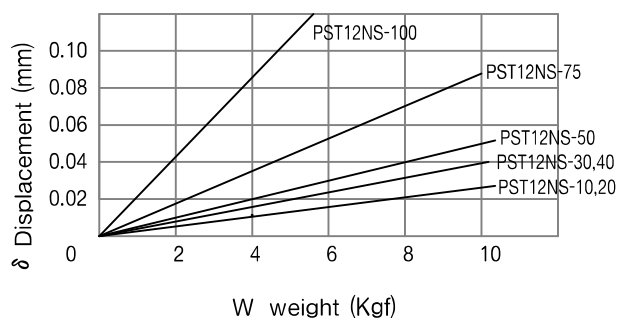
◆ PST06NS



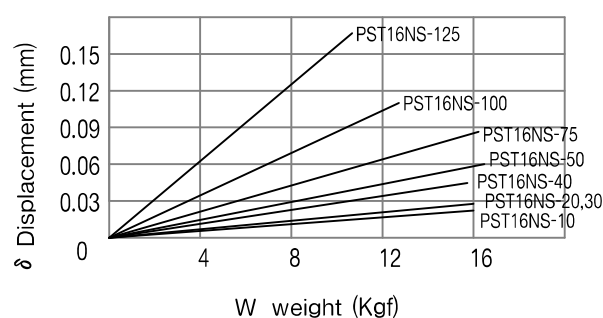
◆ PST08NS



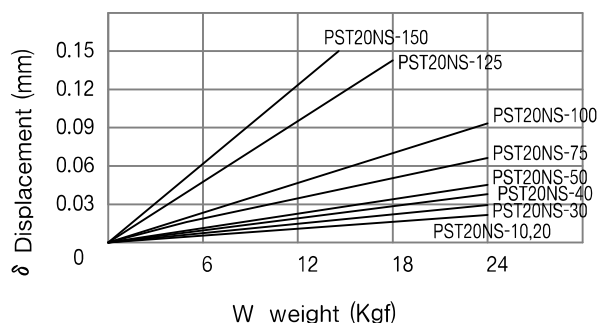
◆ PST12NS



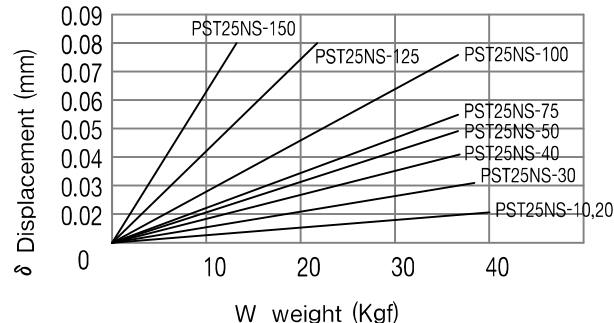
◆ PST16NS



◆ PST20NS



◆ PST25NS



PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

05

10

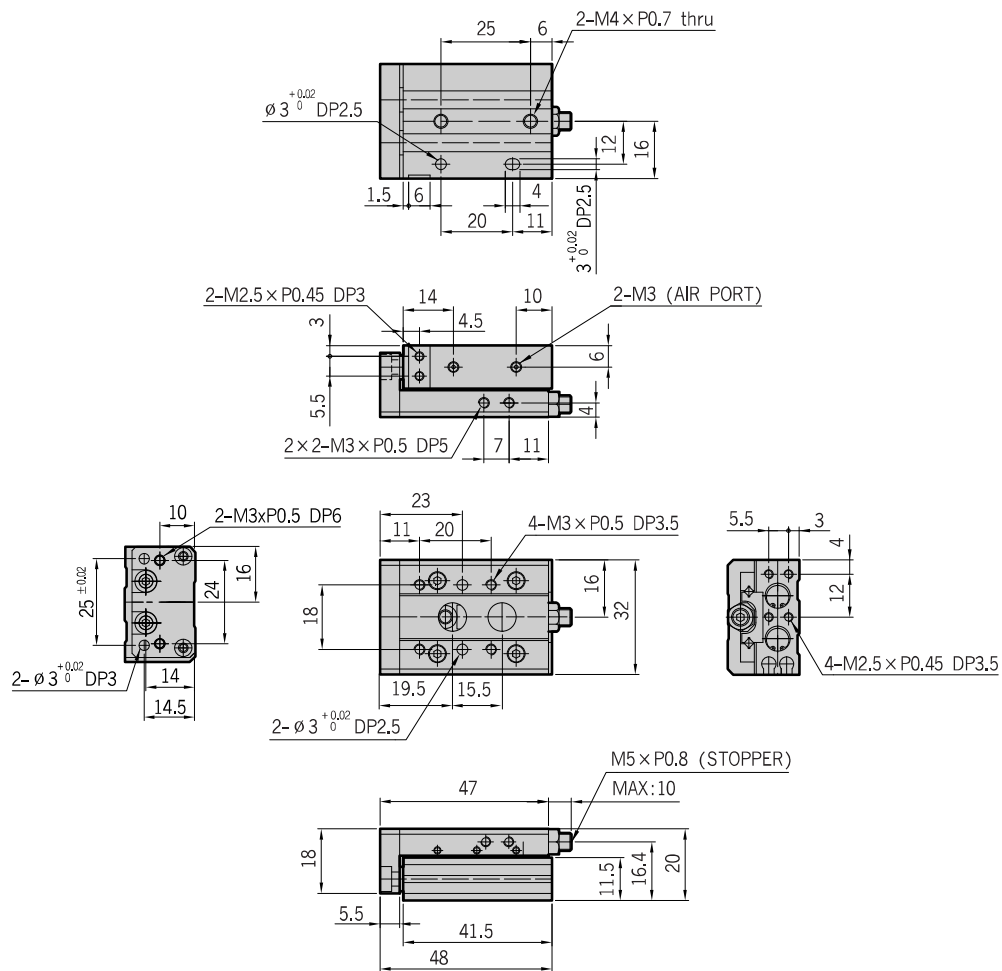
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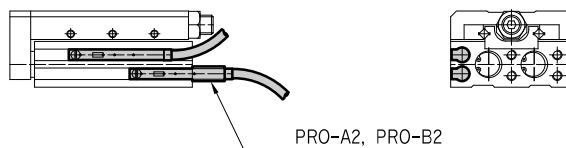
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PST06NS-10



※ Only bottom TAP(M4) available for body installation

PST06NS-10-Auto Switch



06NS

08NS

12NS

16NS

20NS

25NS

05

10

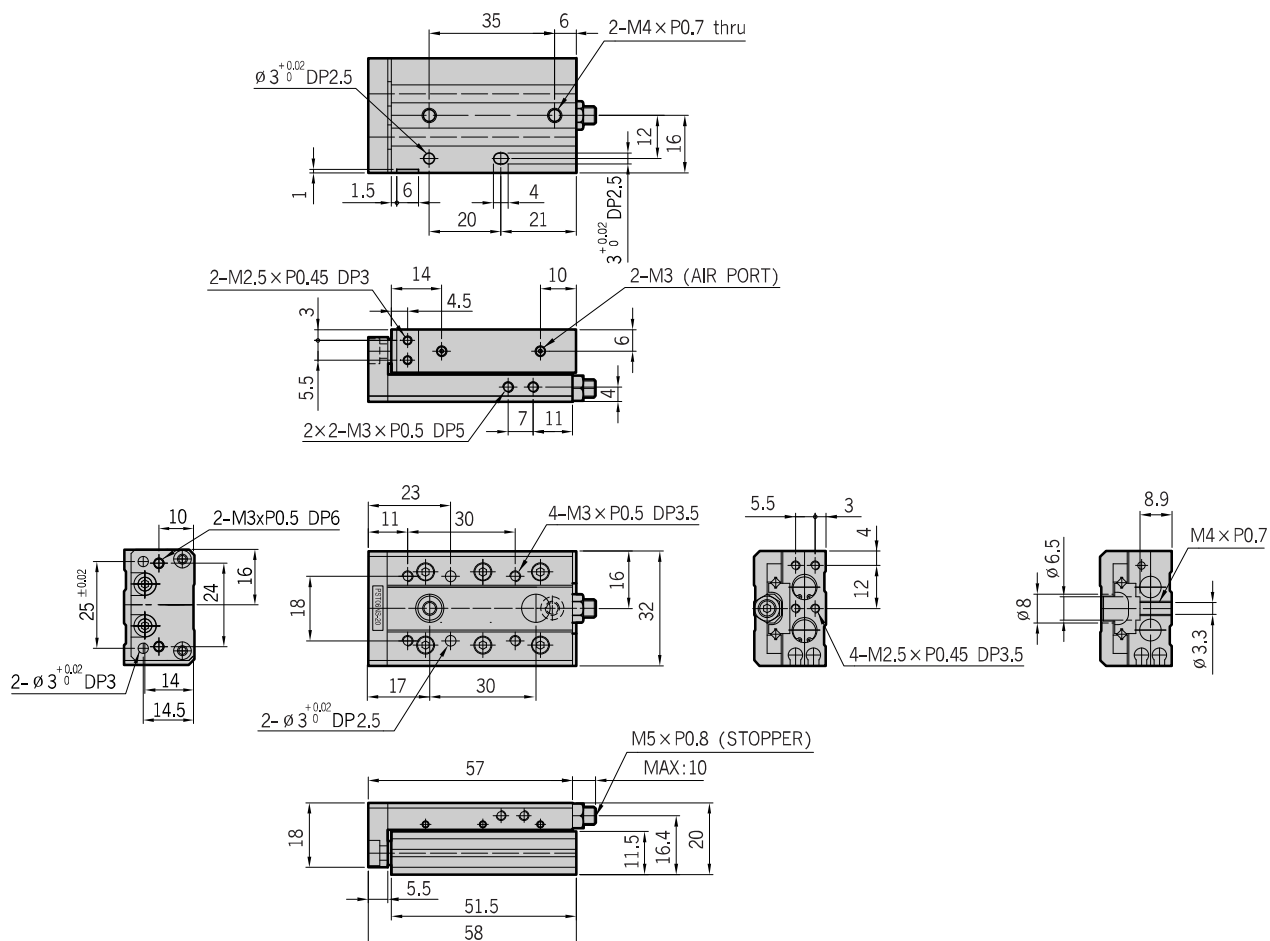
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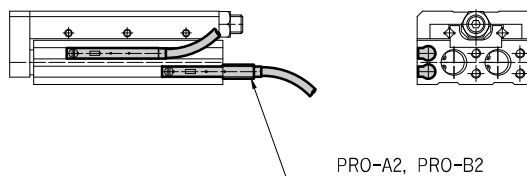
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PST06NS-20



PST06NS-20-Auto Switch



PRO-A2, PRO-B2

PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

05

10

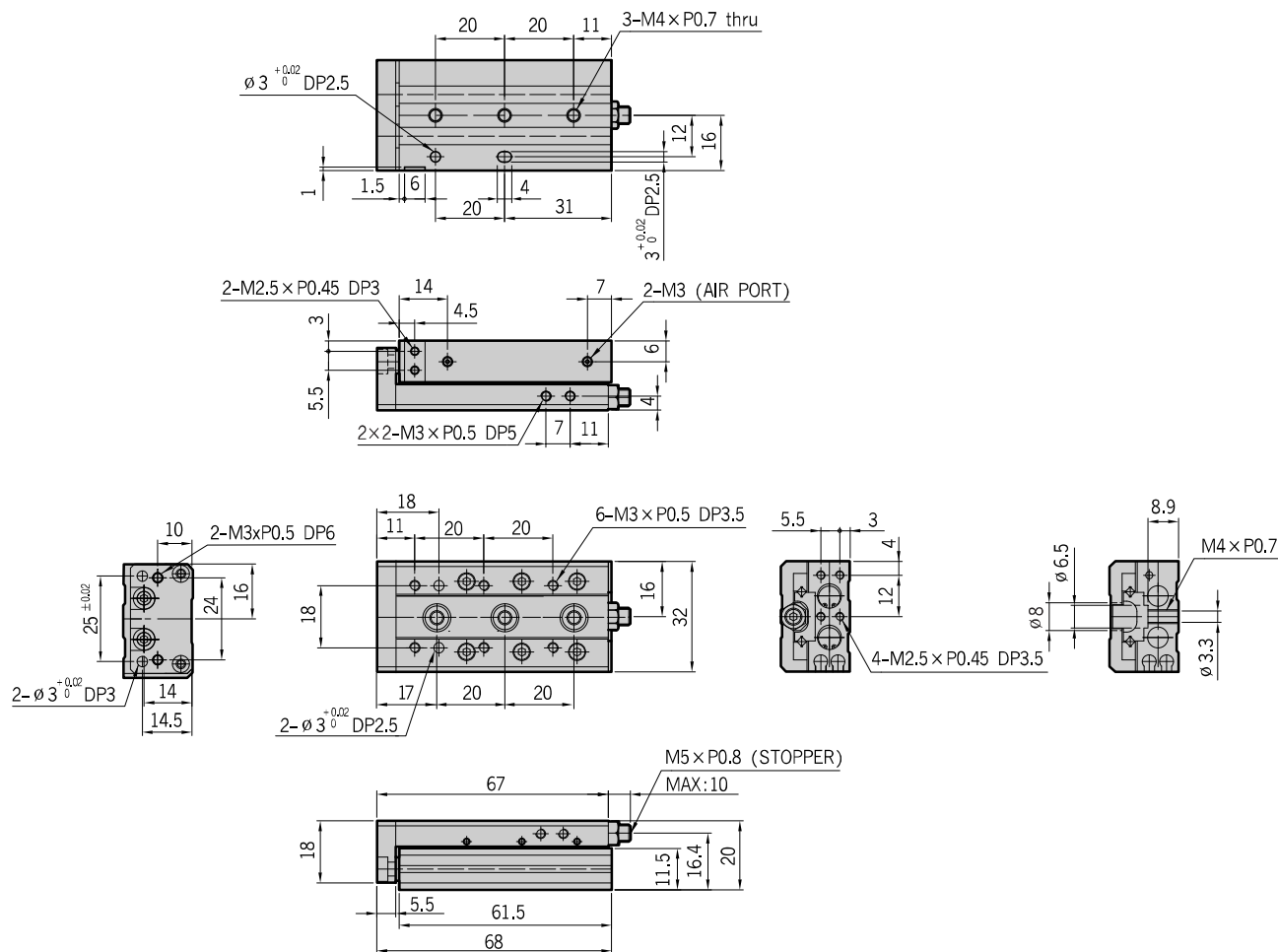
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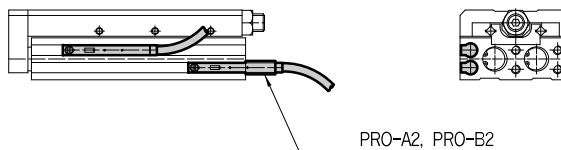
40

50

PST06NS-30



PST06NS-30-Auto Switch



50)

MAX:10

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

05

10

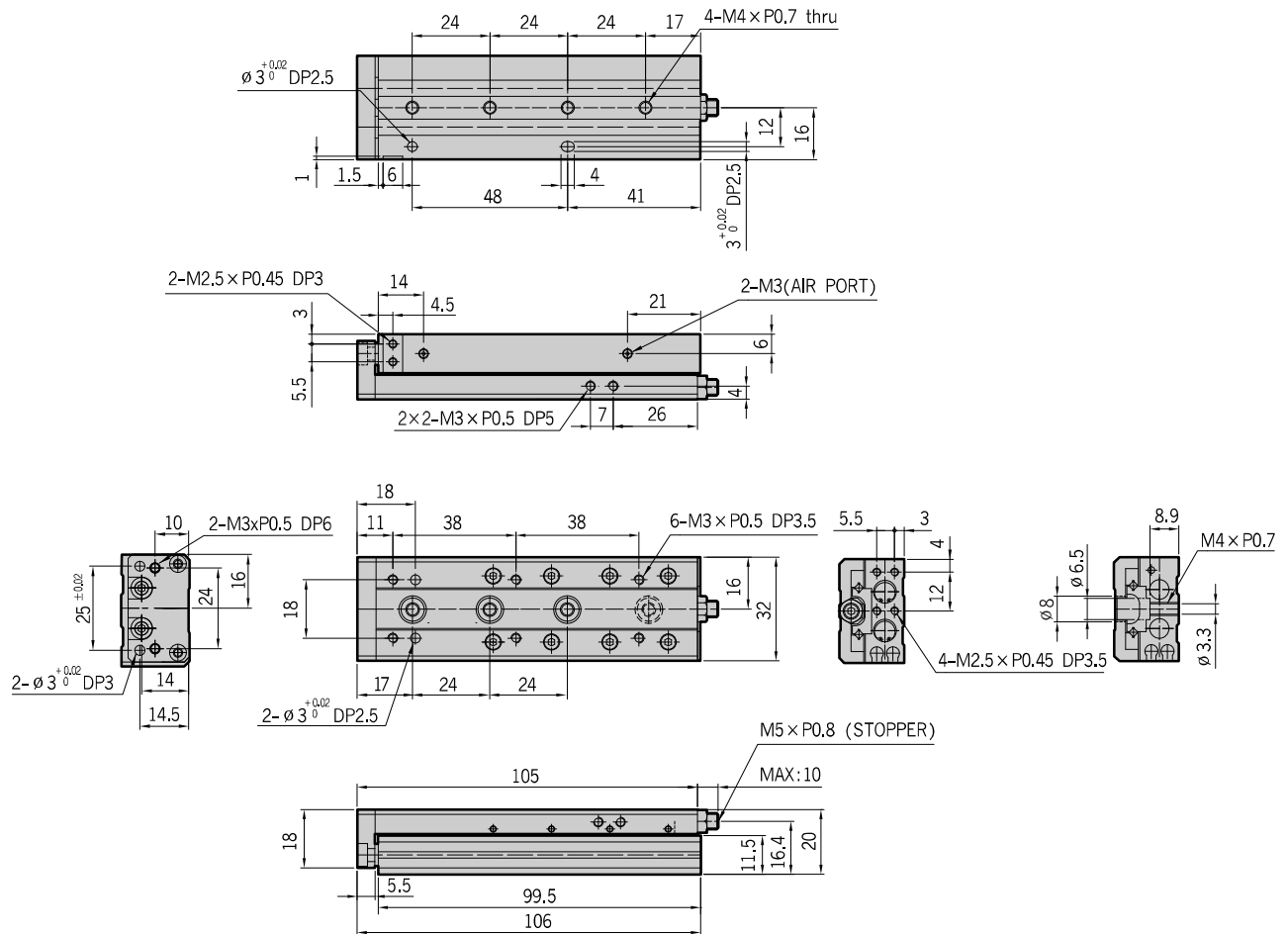
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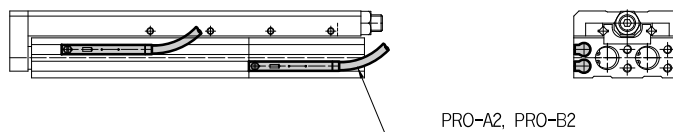
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PST06NS-50



PST06NS-50-Auto Switch



06NS

08NS

12NS

16NS

20NS

25NS

10

20

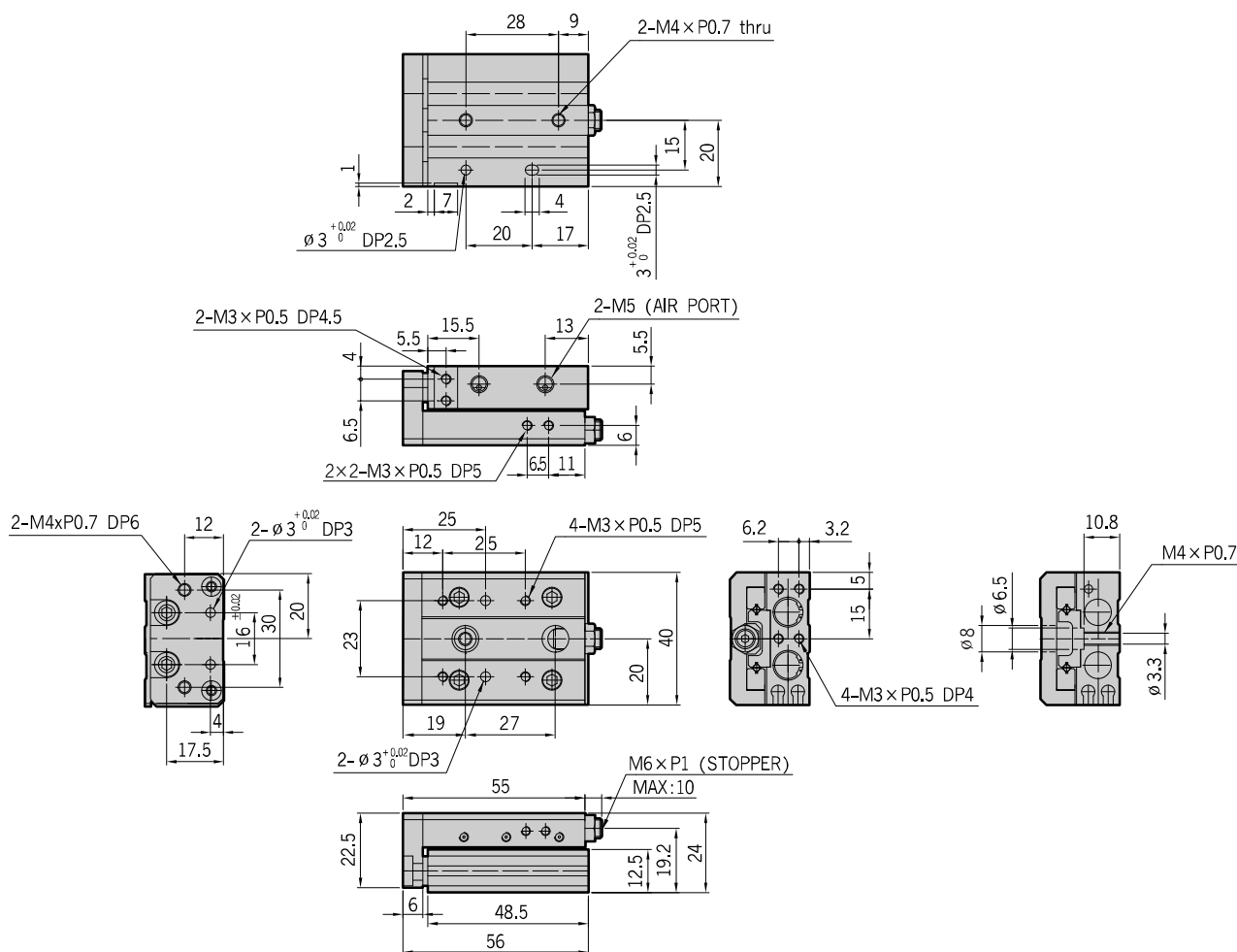
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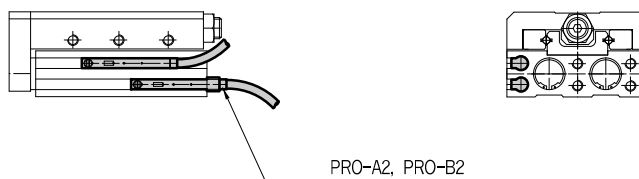
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75

PST08NS-10



PST08NS-10-Auto Switch



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

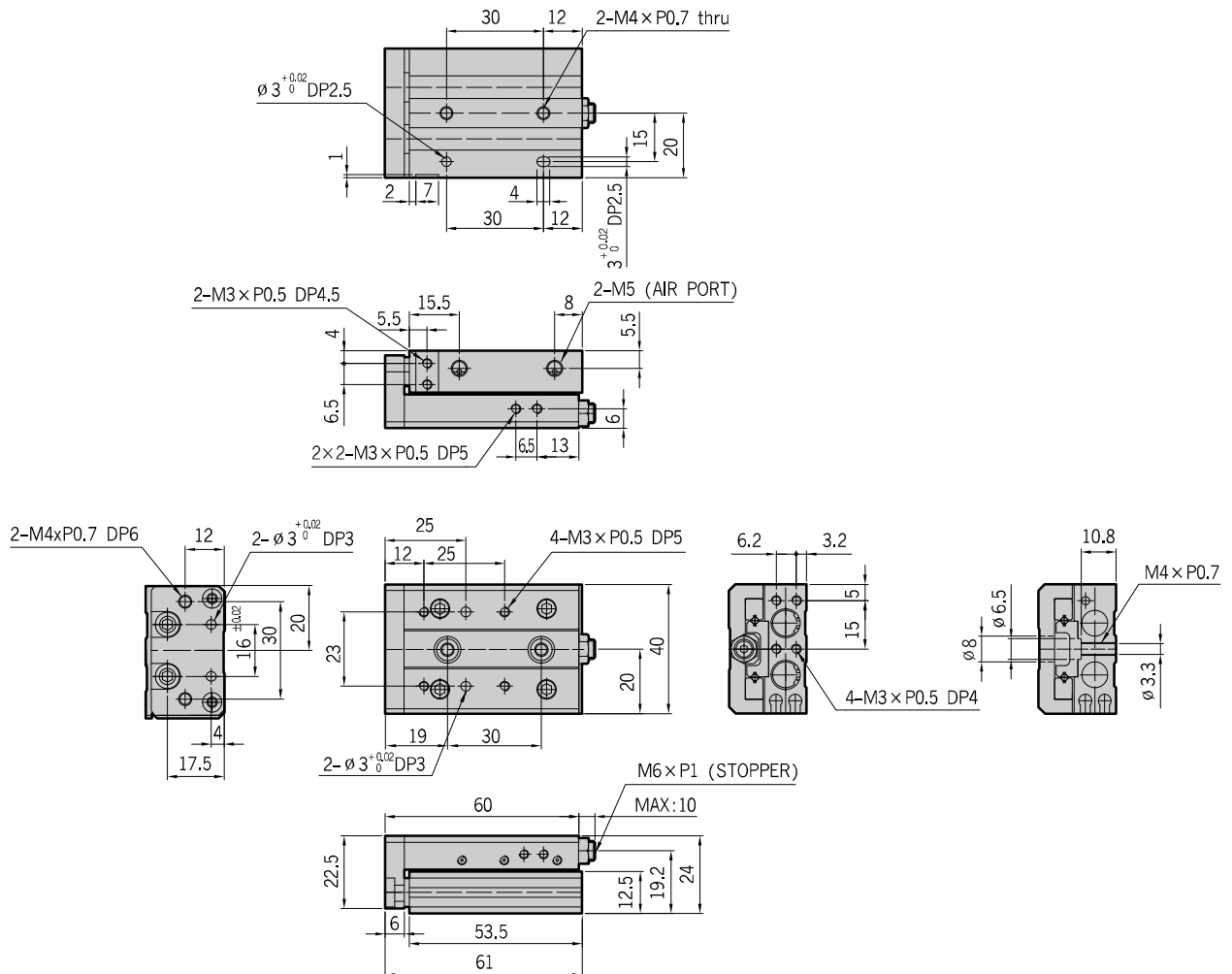
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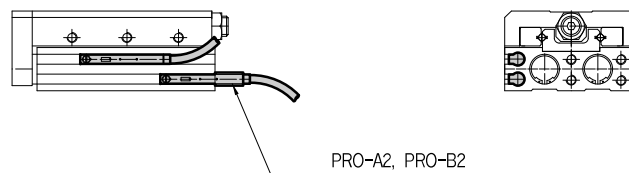
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75

PST08NS-20



PST08NS-20-Auto Switch



06NS

08NS

12NS

16NS

20NS

25NS

10

20

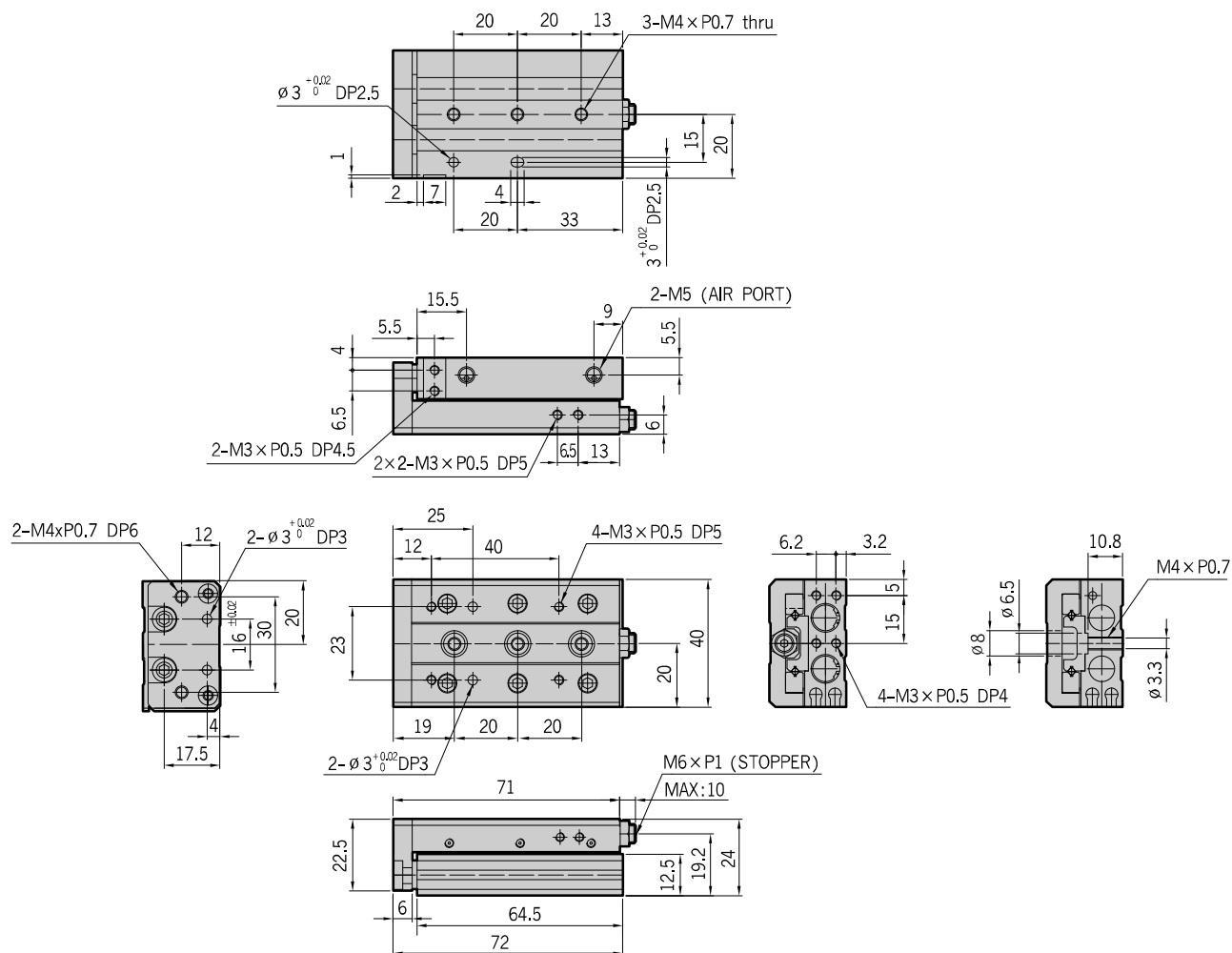
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40

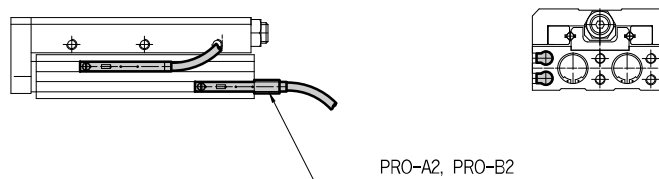
50

75

PST08NS-30



PST08NS-30-Auto Switch



PRECISION

PST-NS

PST

SC

ST

STS-L

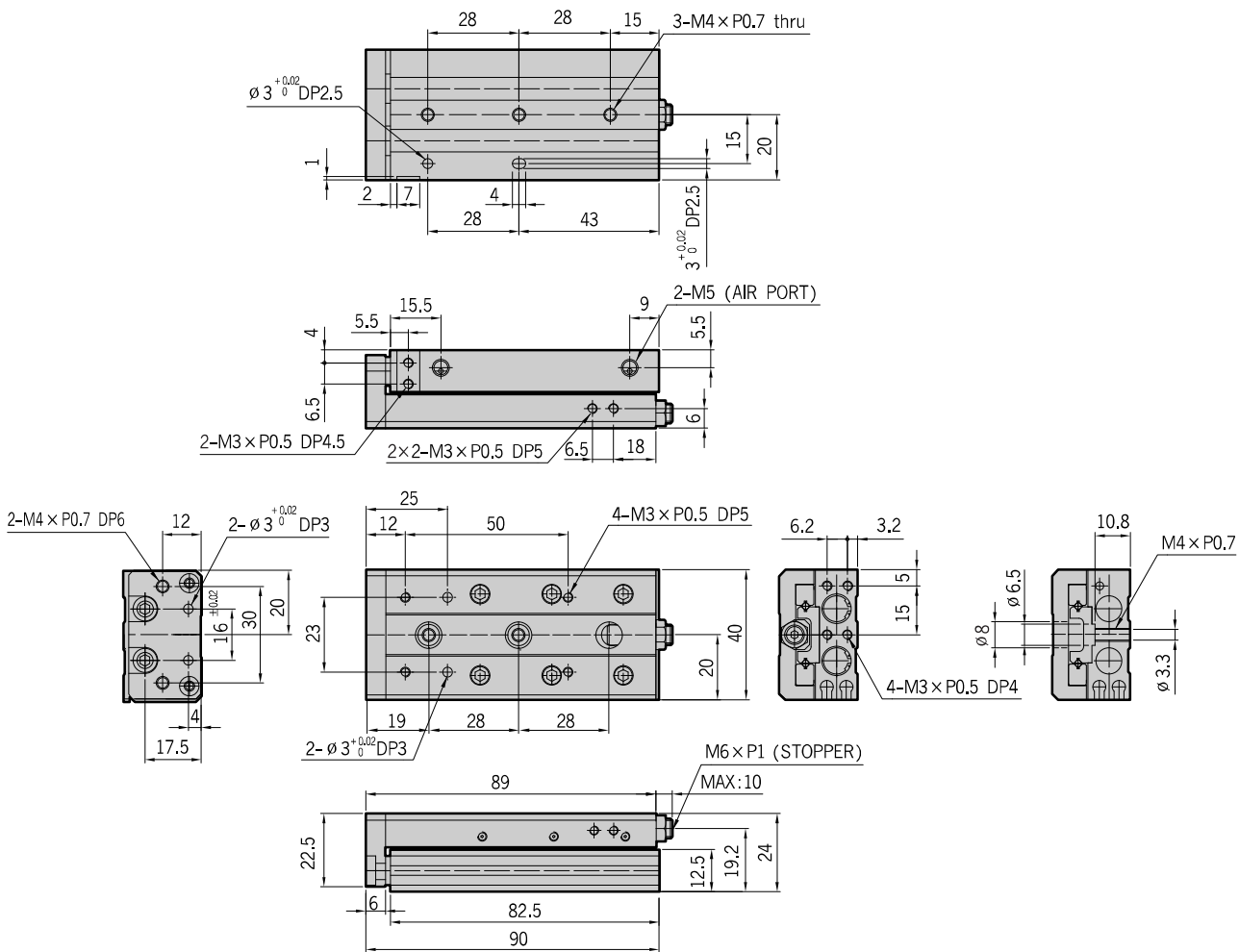
SD

PSW

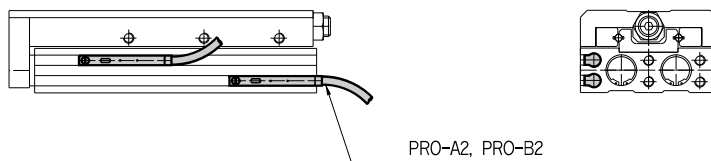
25NS

(75

5

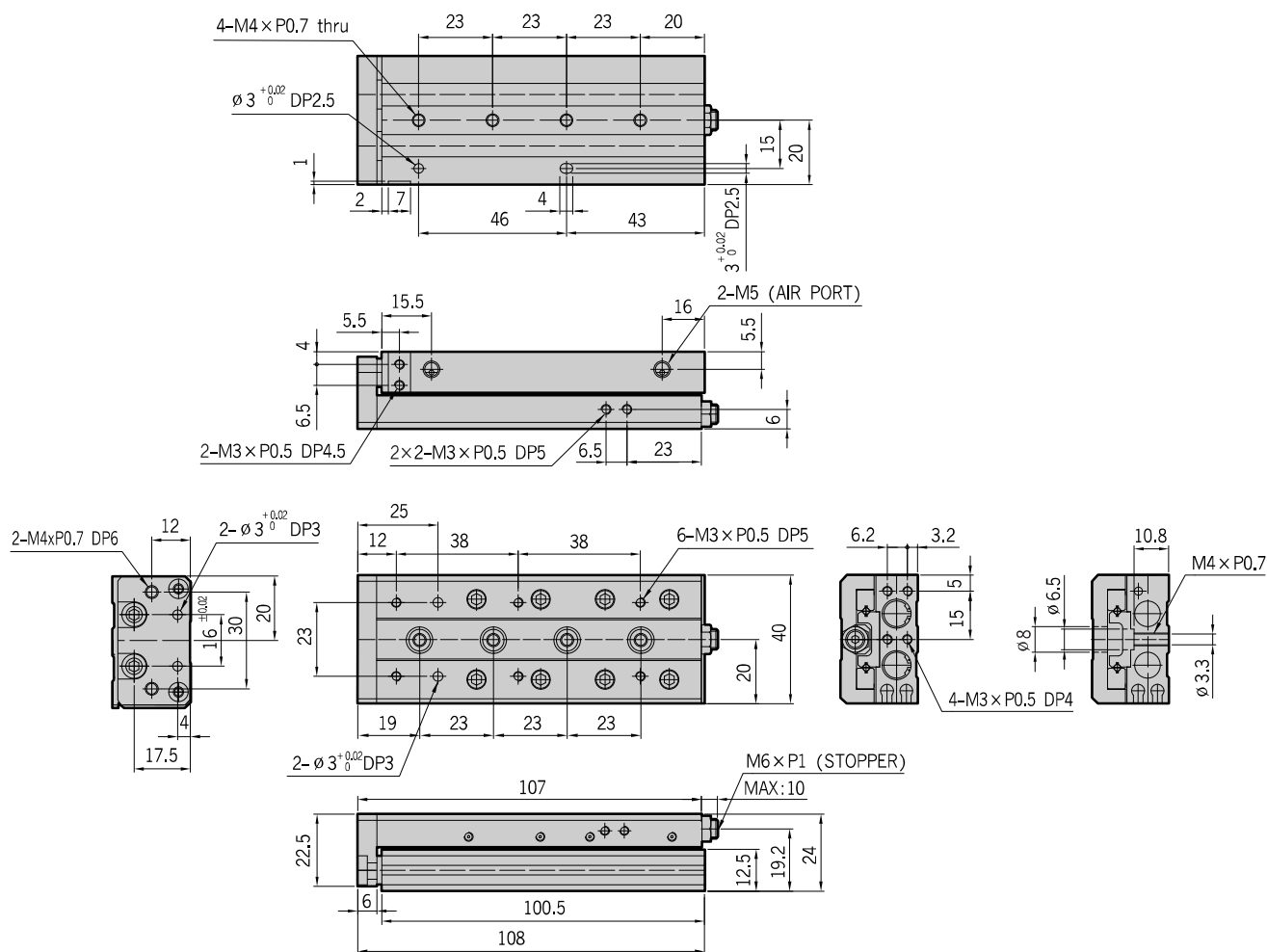


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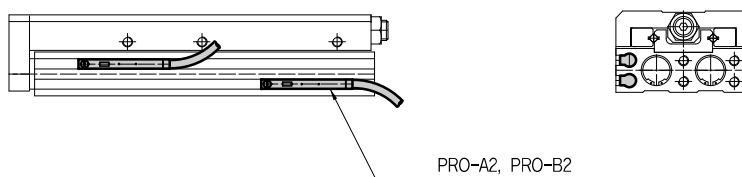


06NS	08NS	12NS	16NS	20NS	25NS
10	20	30	40	50	75

PST08NS-50



PST08NS-50-Auto Switch



PRECISION

PST-NS

PST

SC

ST

STS-L

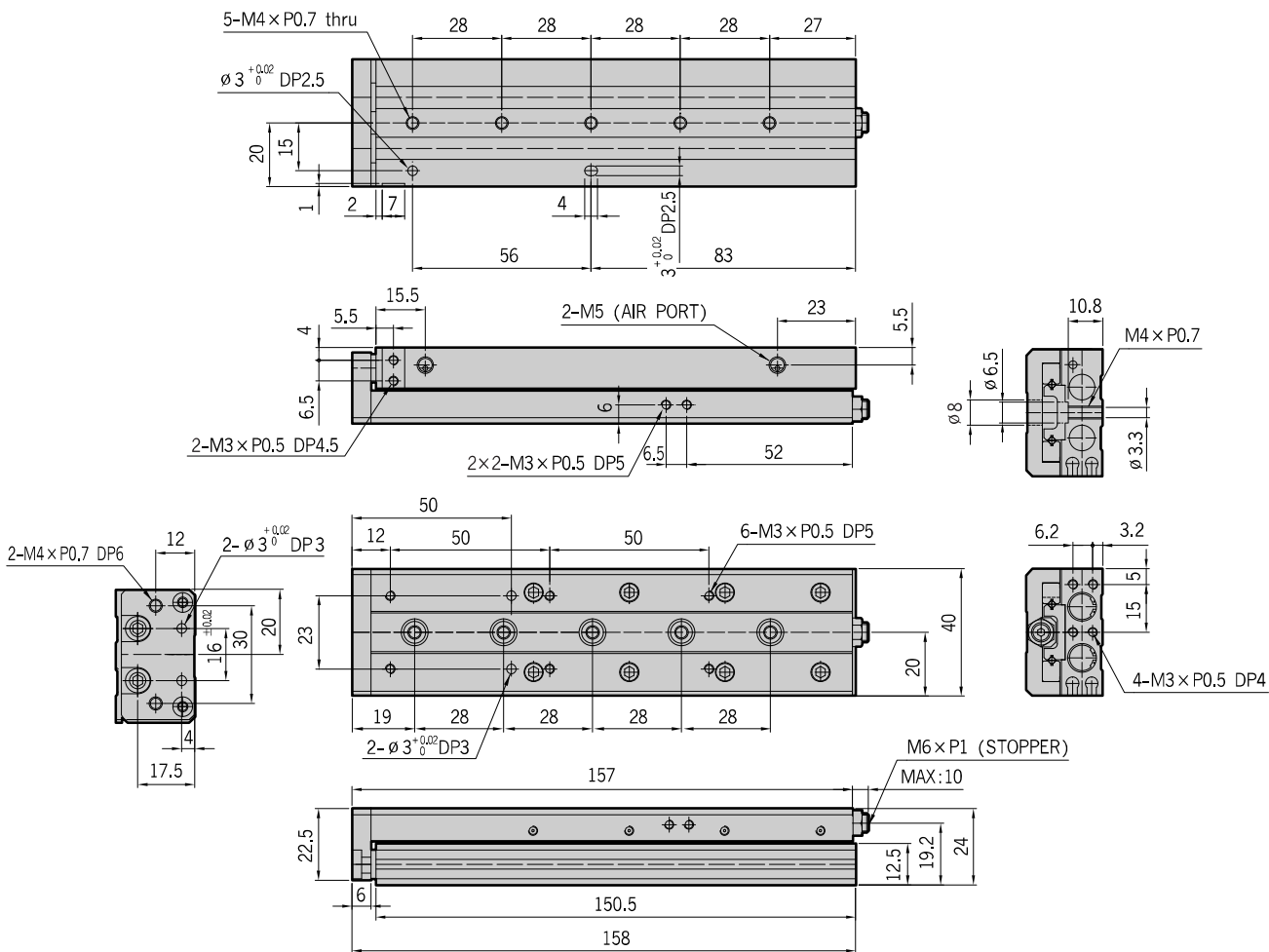
SD

PSW

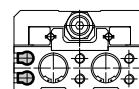
25NS

75

PST08NS-75



PST08NS-75-Auto Switch



PRO-A2, PRO-B2

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

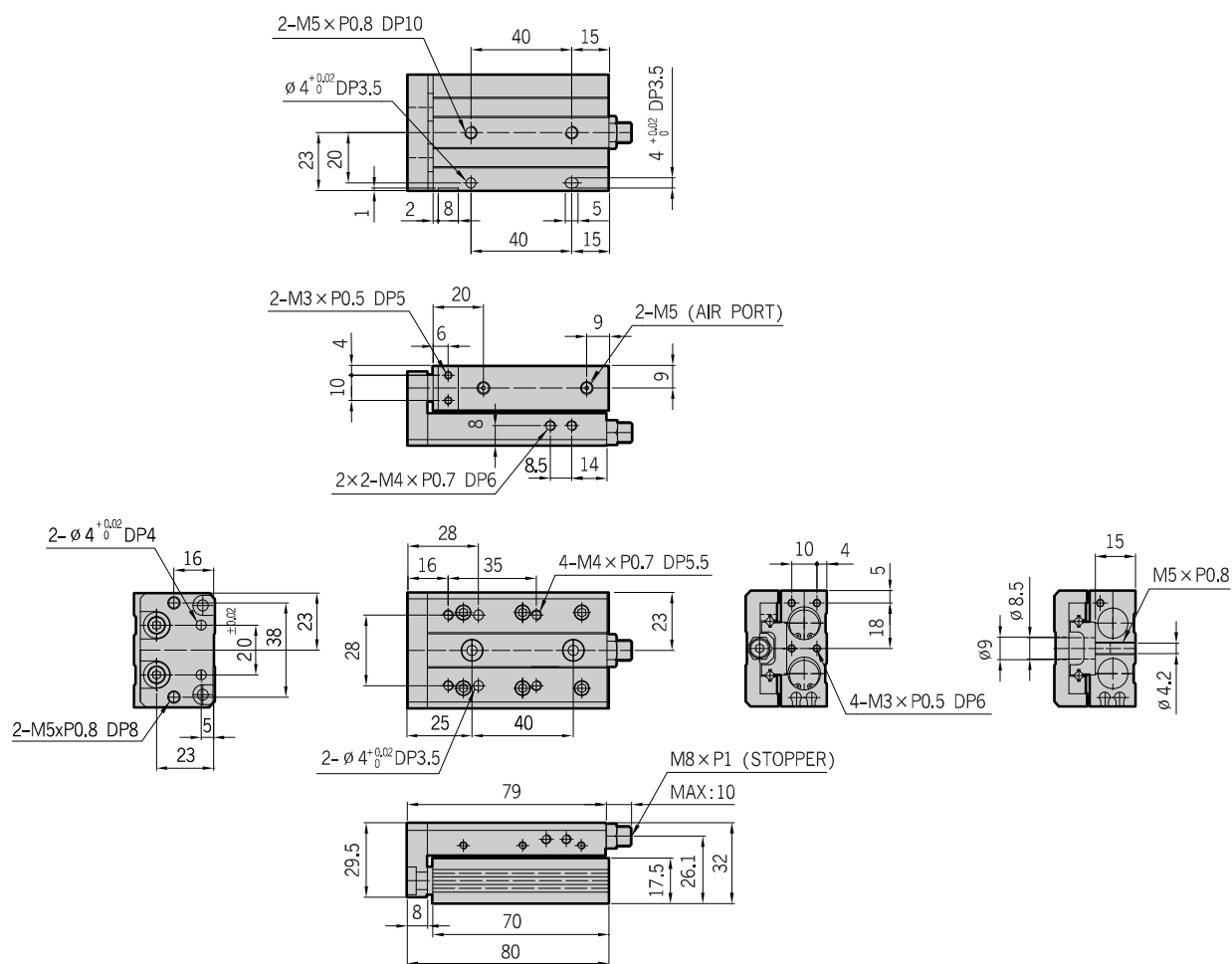
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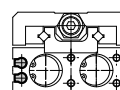
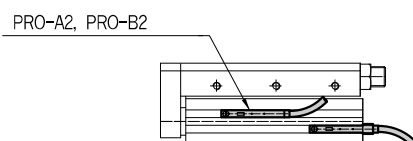
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100

PST12NS-10,20,30



PST12NS-10,20,30-Auto Switch



PRECISION

PST-NS

PST

SC

ST

STS-L

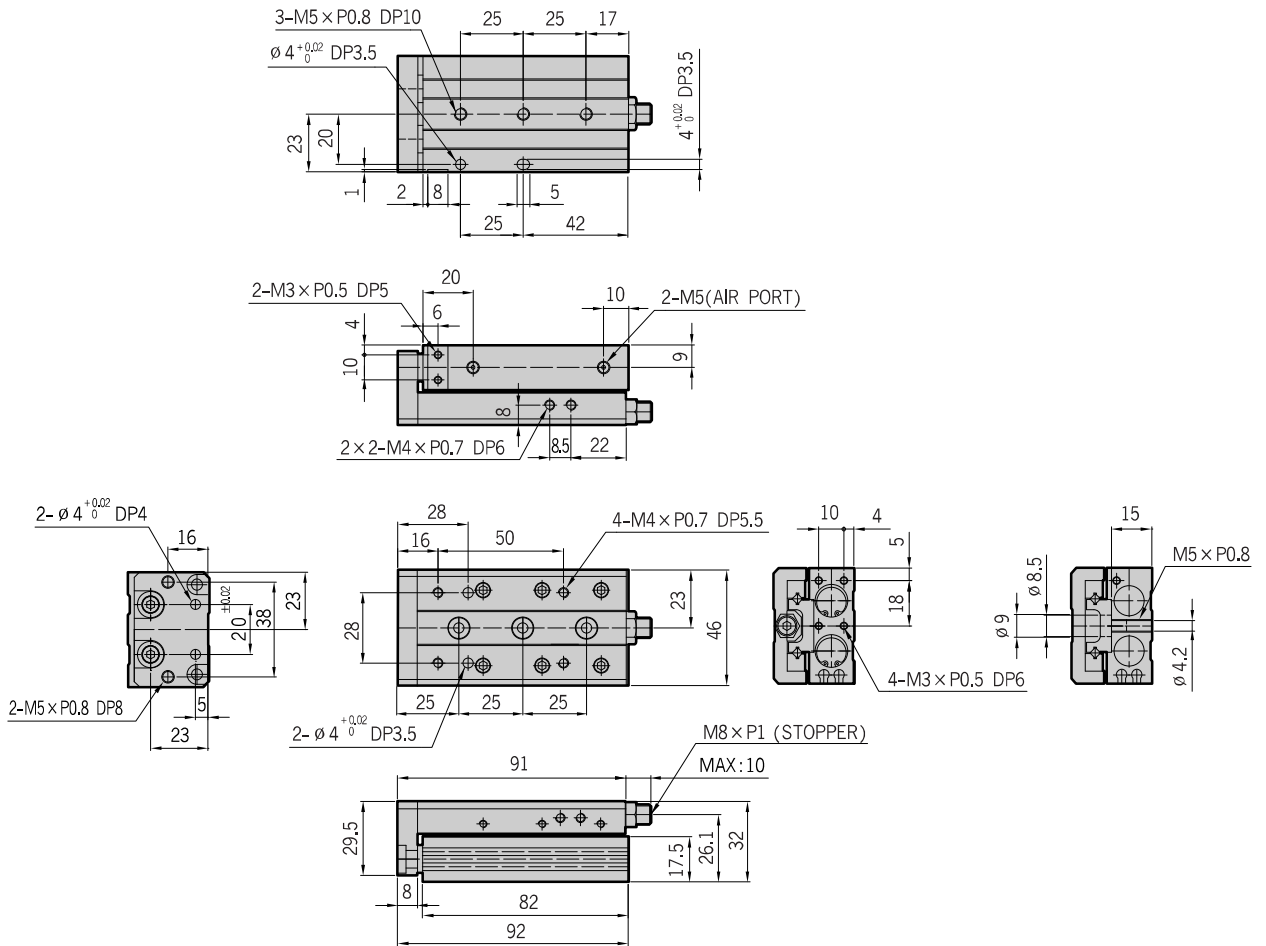
SD

PSW

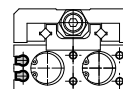
25NS

(10)

PST12NS-40

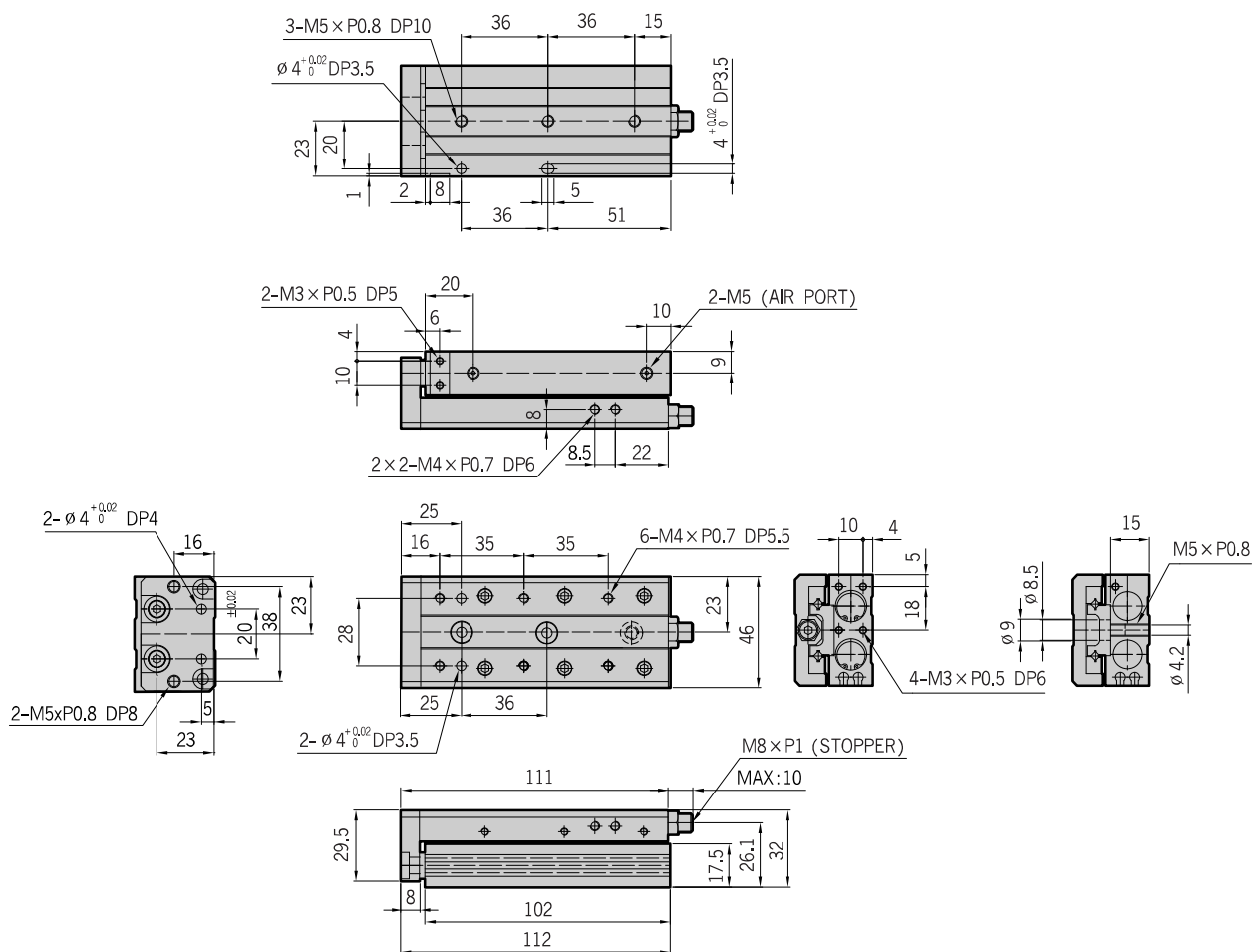


PST12NS-40-Auto Switch



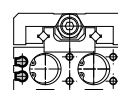
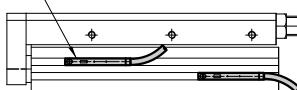
06NS	08NS	12NS	16NS	20NS	25NS	
10	20	30	40	50	75	100

PST12NS-50



PST12NS-50-Auto Switch

PRO-A2, PRO-B2



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

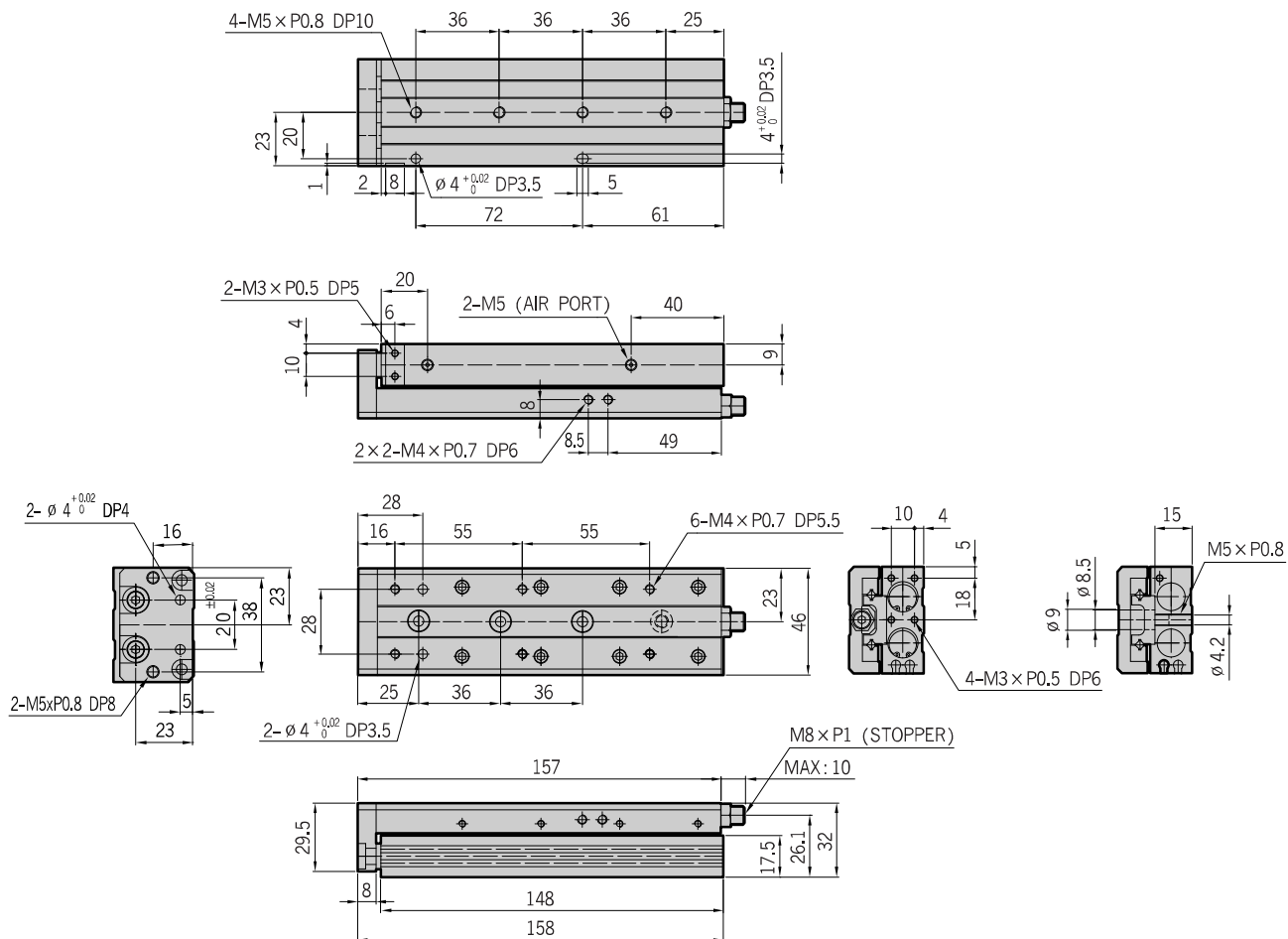
40

50

75

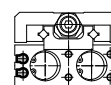
100

PST12NS-75



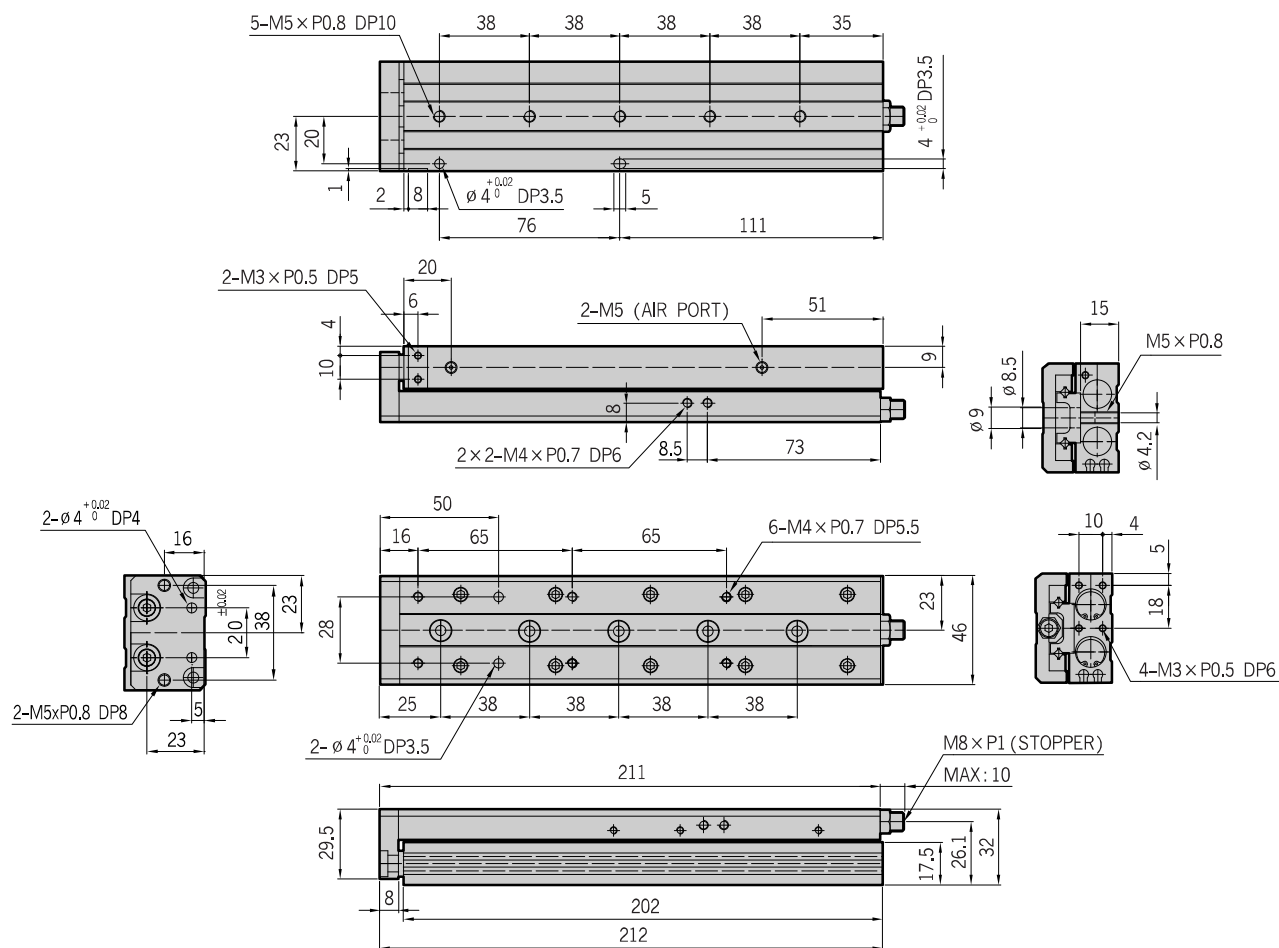
PST12NS-75-Auto Switch

PRO-A2, PRO-B2



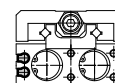
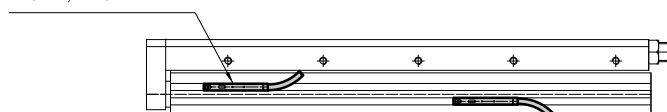
06NS	08NS	12NS	16NS	20NS	25NS
10	20	30	40	50	75
					100

PST12NS-100



PST12NS-100-Auto Switch

PRO-A2, PRO-B2



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

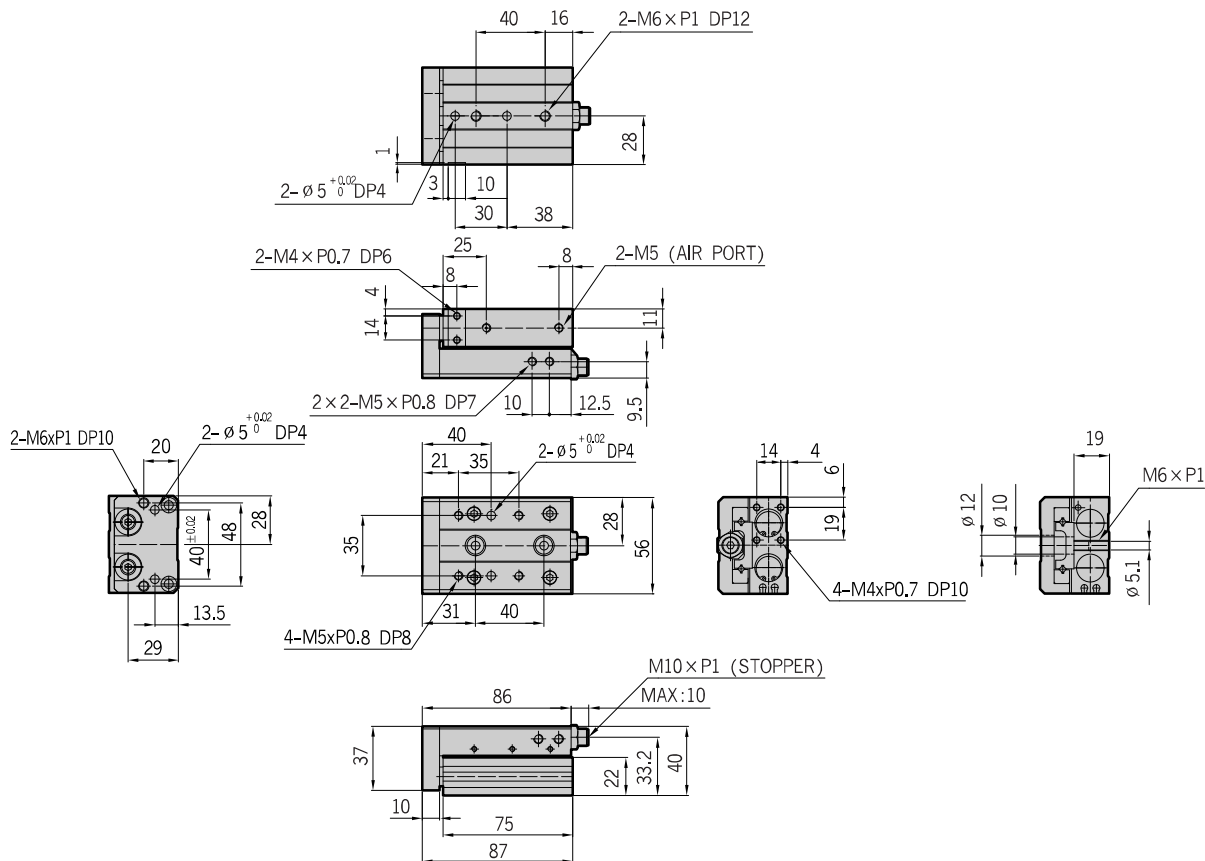
50

75

100

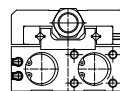
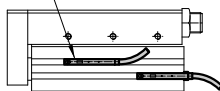
125

PST16NS-10,20,30



PST16NS-10,20,30-Auto Switch

PRO-A2, PRO-B2



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

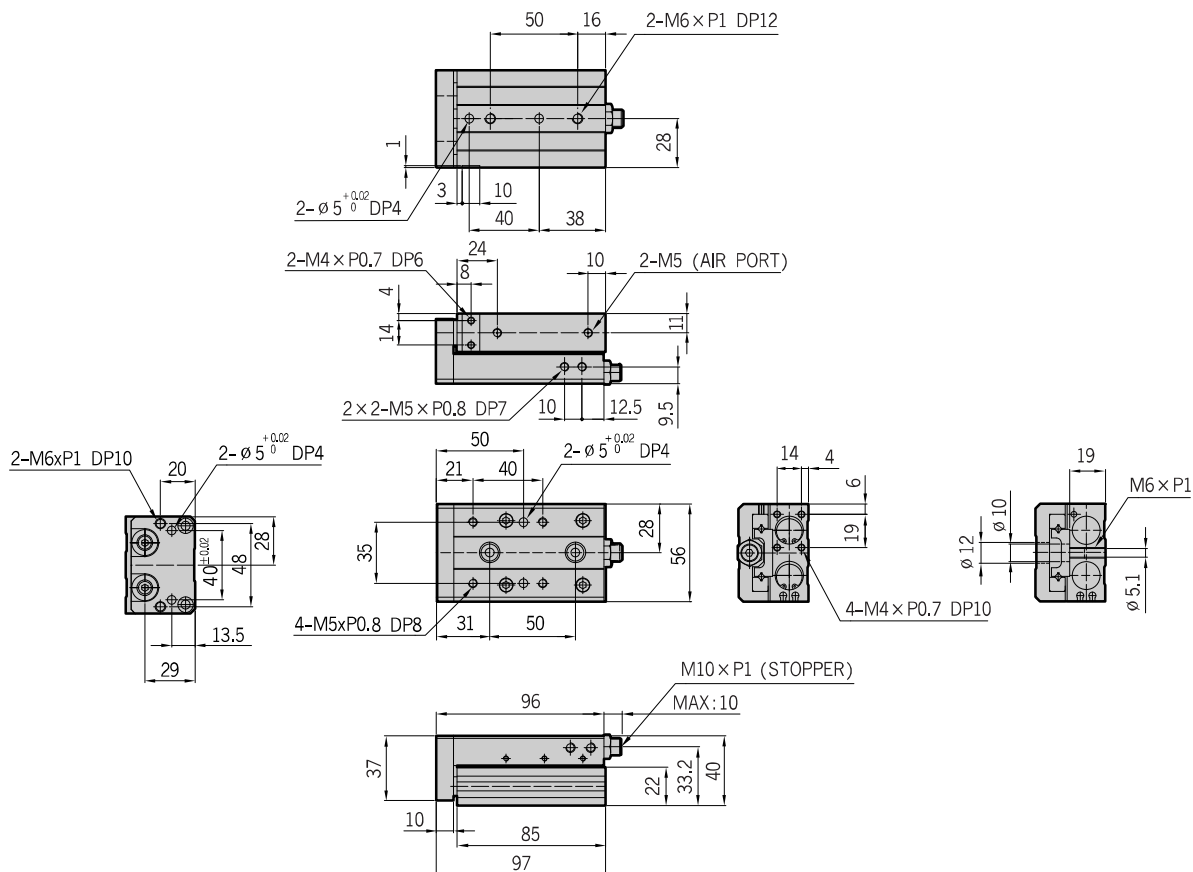
50

75

100

125

PST16NS-40



PST16NS-40-Auto Switch

PRO-A2, PRO-B2



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

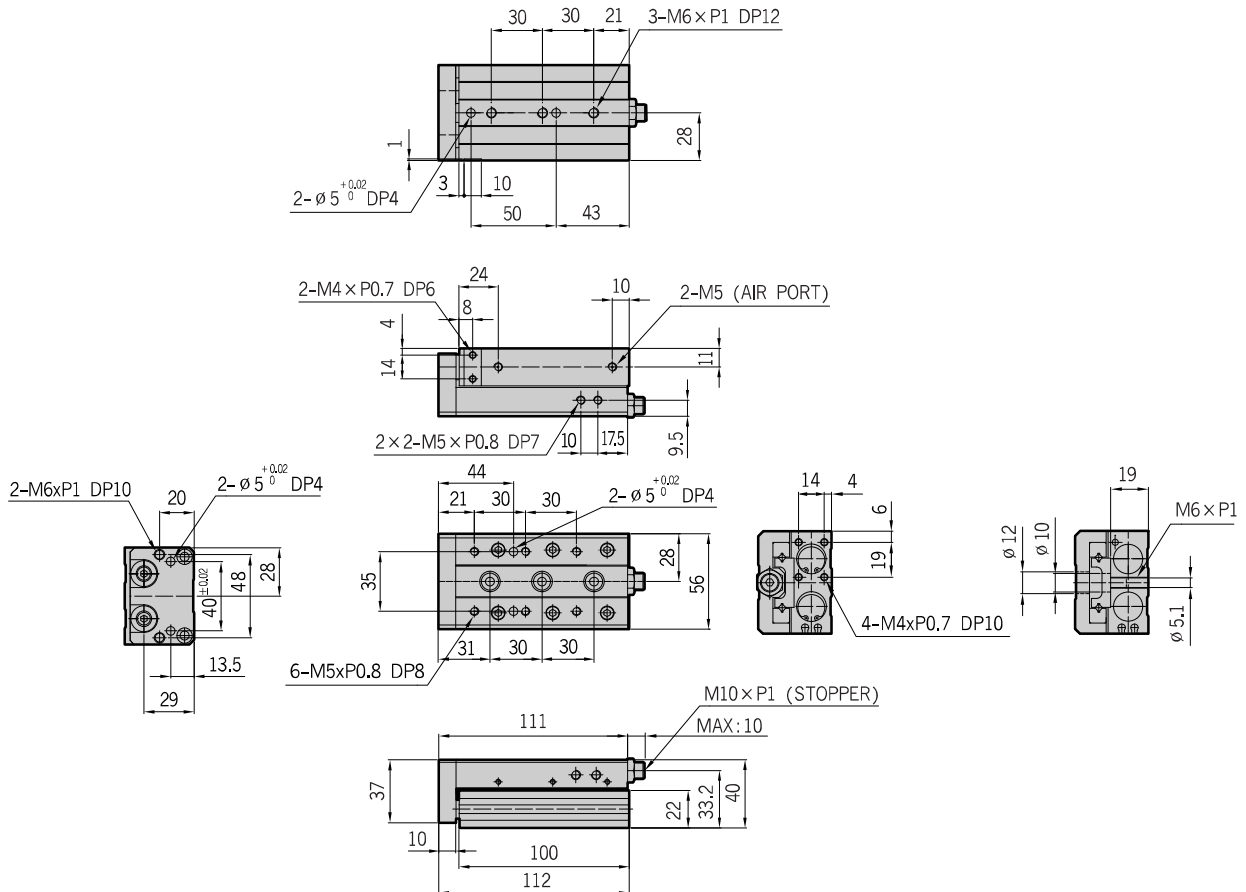
50

75

100

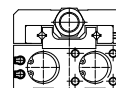
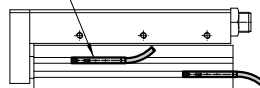
125

PST16NS-50



PST16NS-50-Auto Switch

PRO-A2, PRO-B2



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

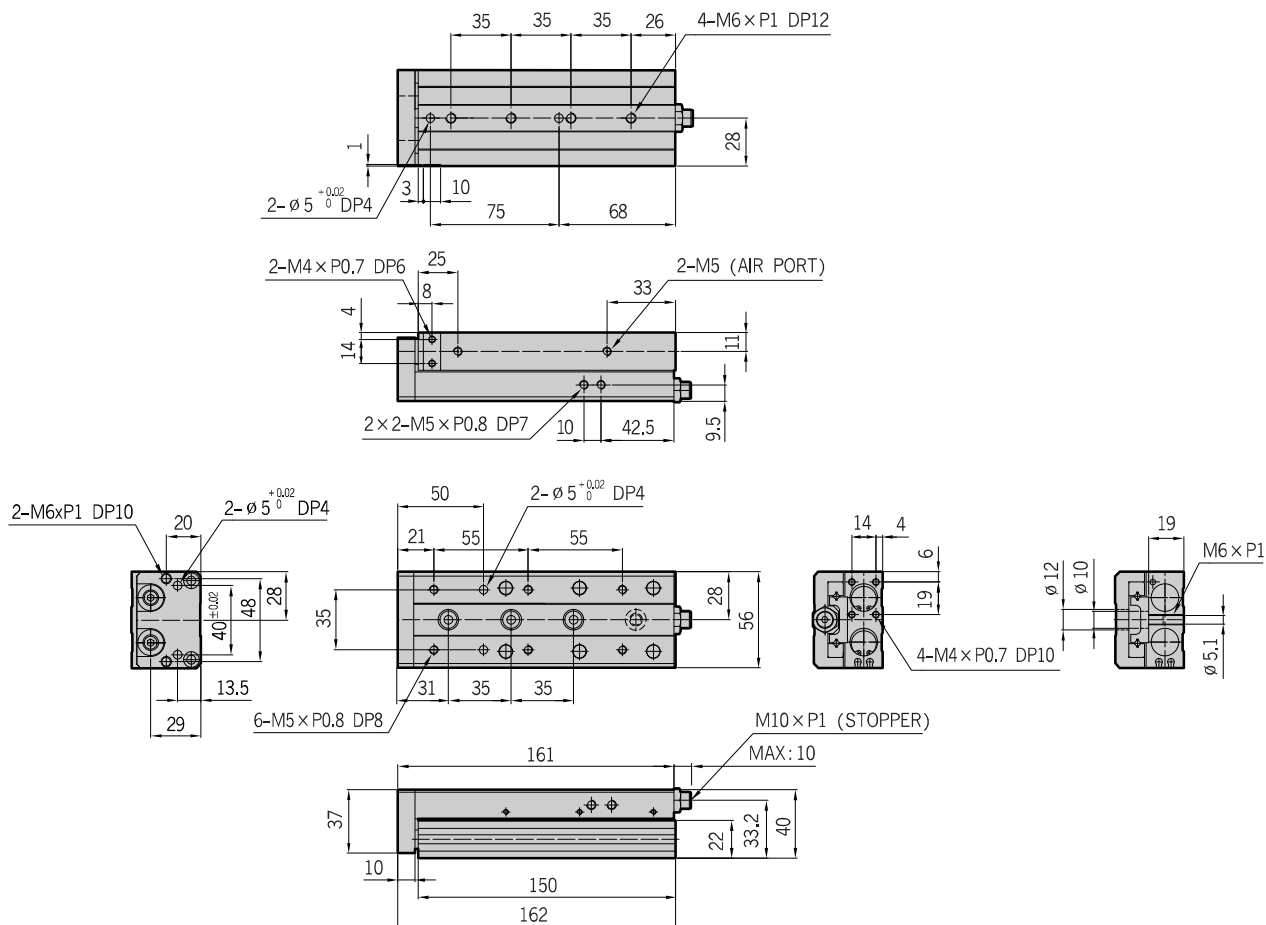
50

75

100

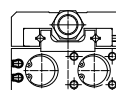
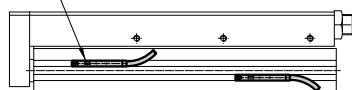
125

PST16NS-75



PST16NS-75-Auto Switch

PRO-A2, PRO-B2



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

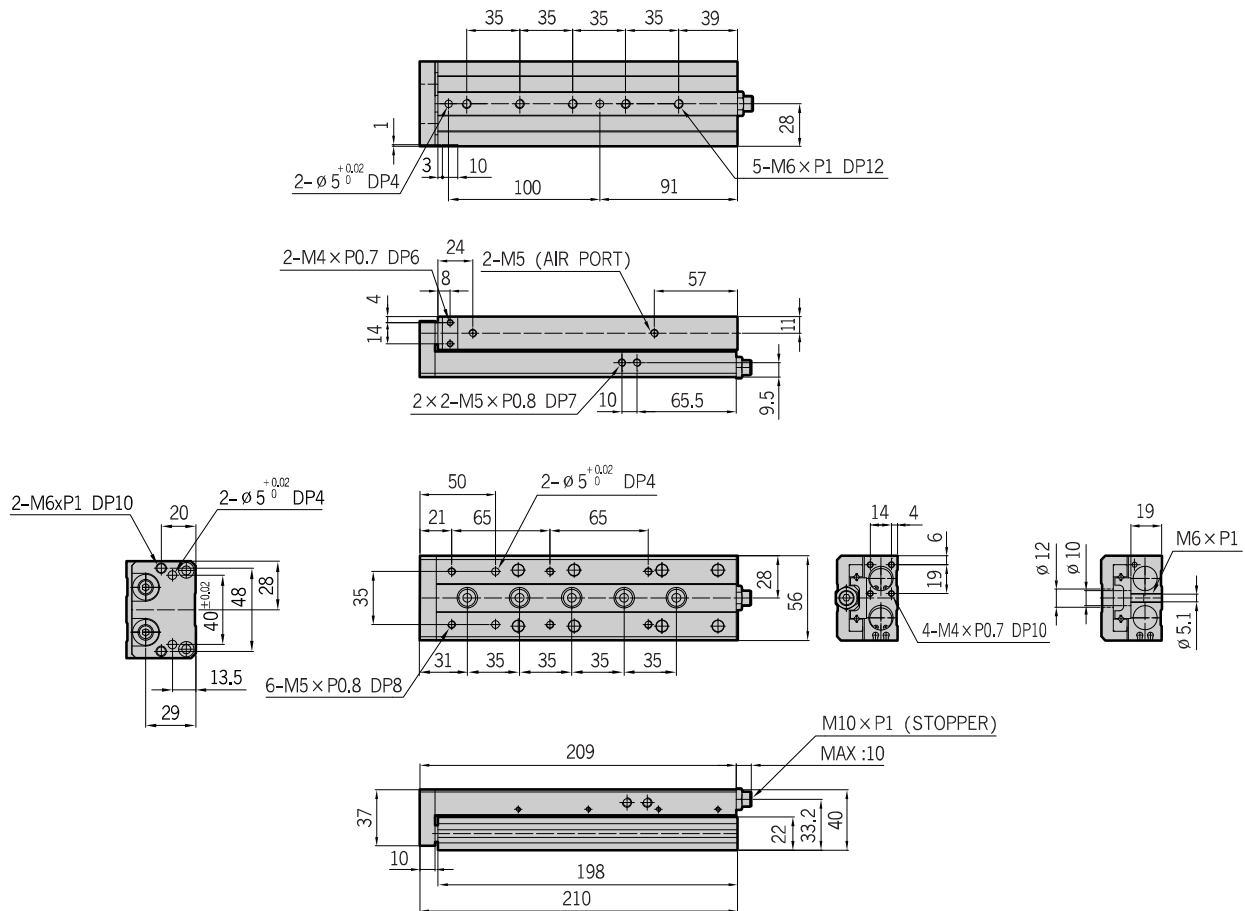
50

75

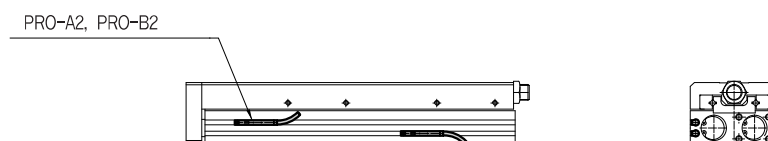
100

125

PST16NS-100

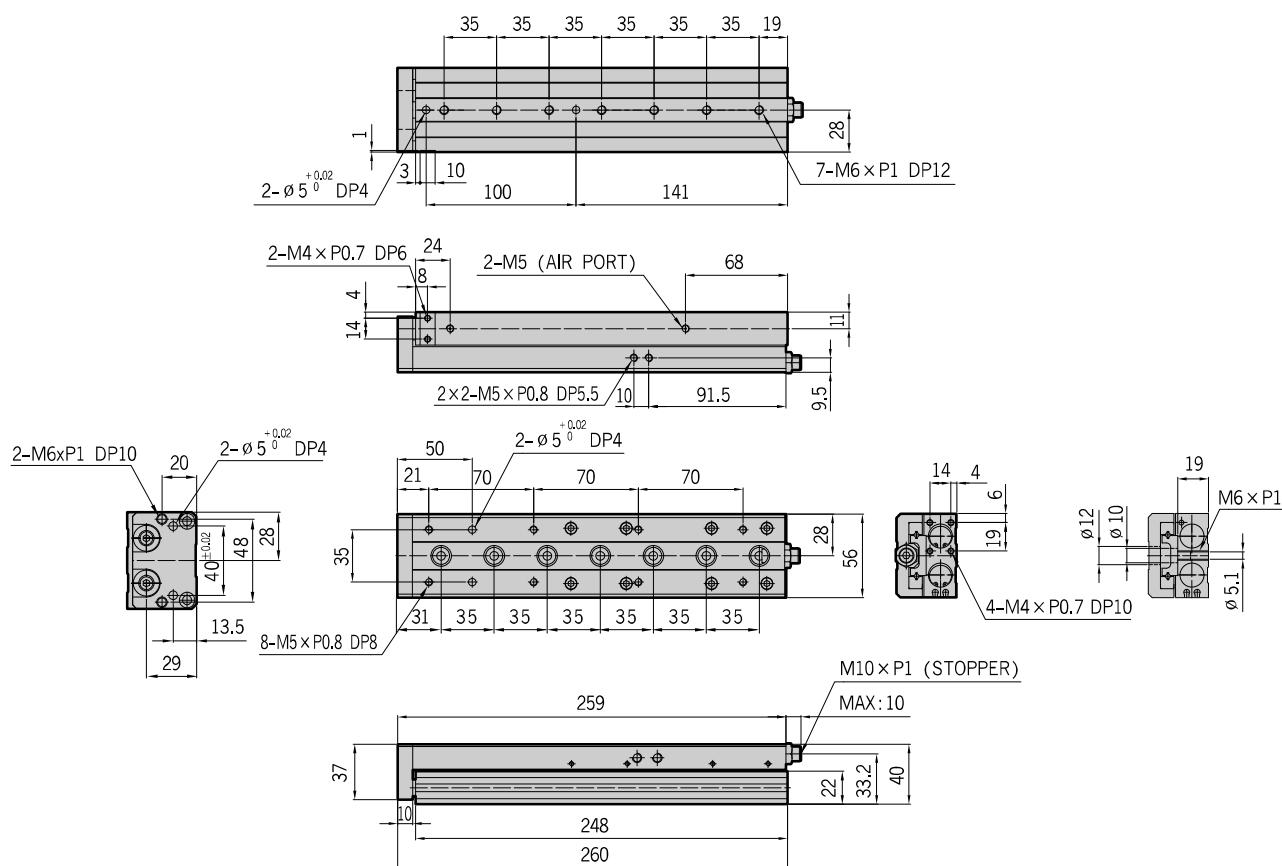


PST16NS-100-Auto Switch



Age Group	Number of People
06NS	10
08NS	20
12NS	30
16NS	40
20NS	75
25NS	125

PST16NS-125



PST16NS-125-Auto Switch



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

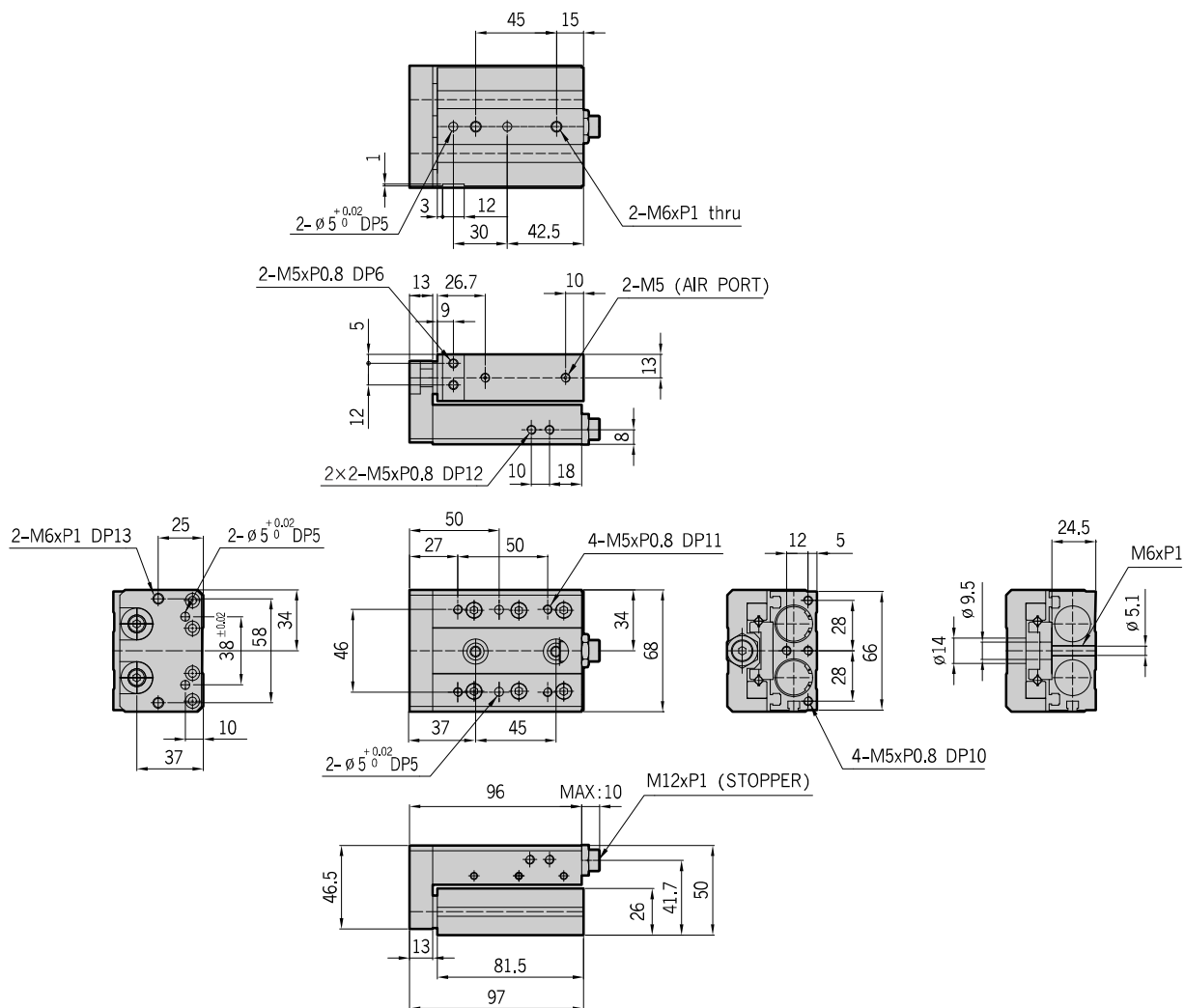
75

100

125

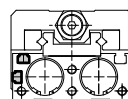
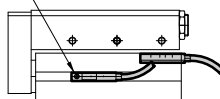
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PST20NS-10,20,30



PST20NS-10,20,30-Auto Switch

PRO-A1, PRO-B1



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

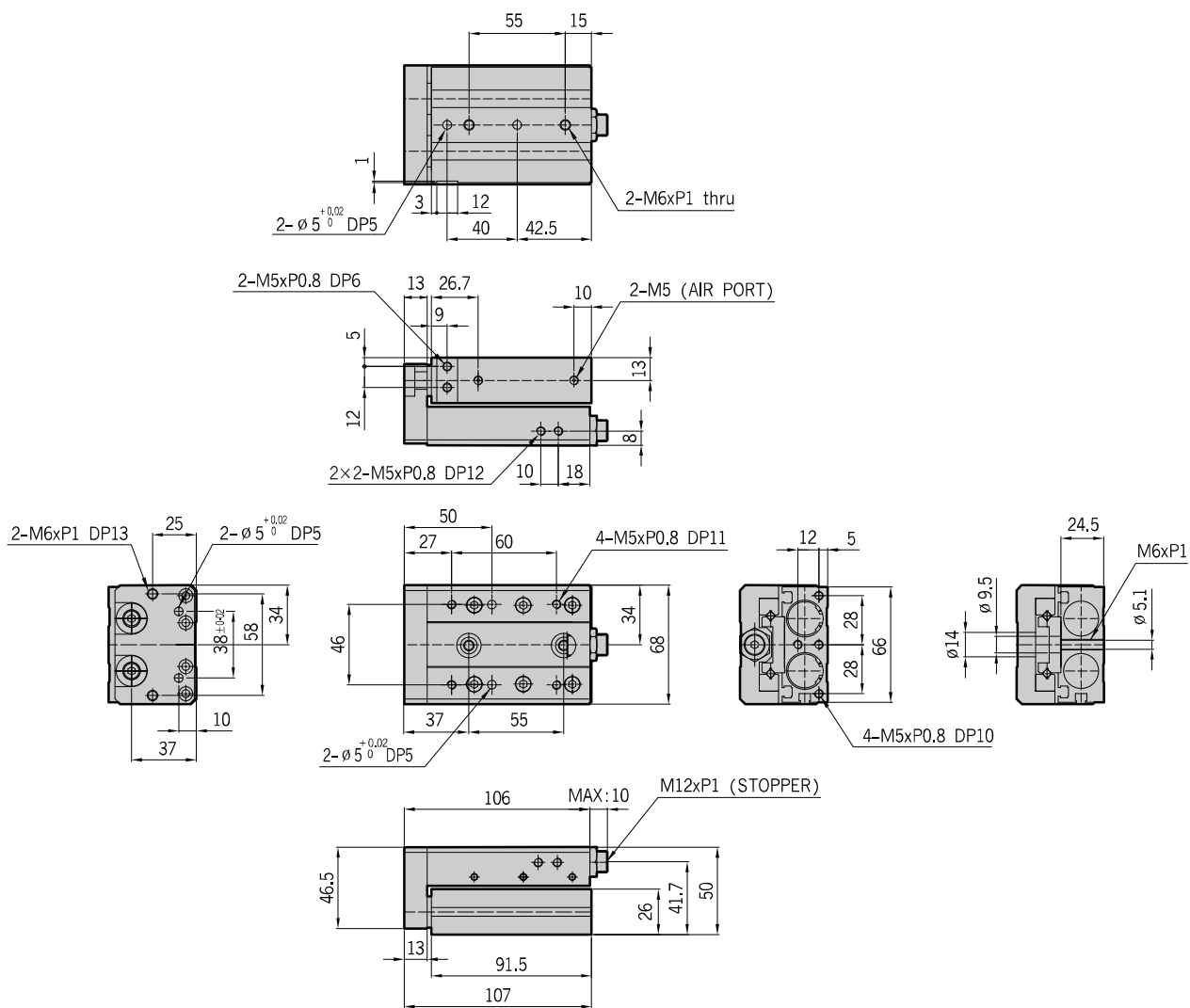
75

100

125

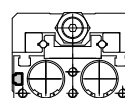
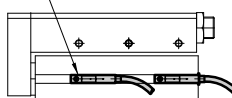
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PST20NS-40



PST20NS-40-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

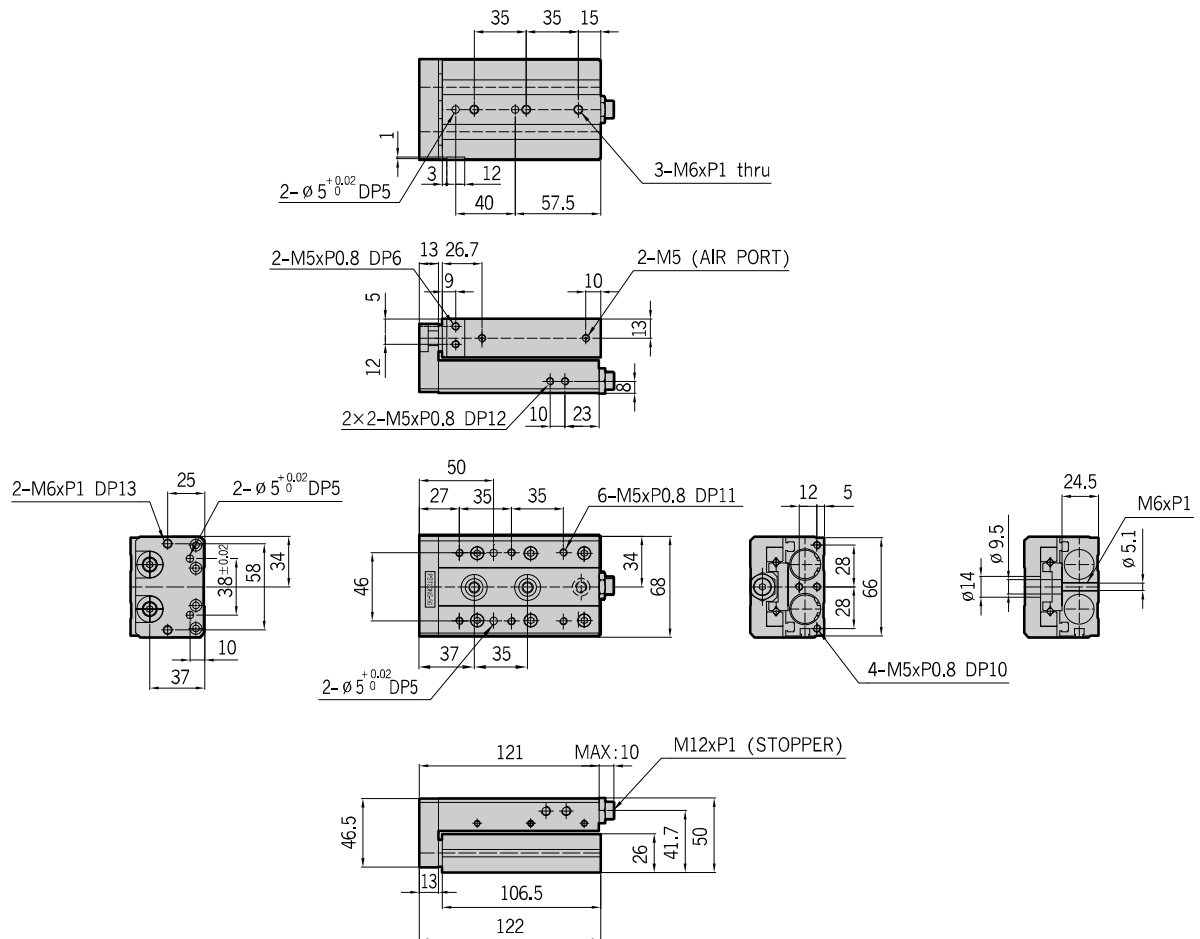
75

100

125

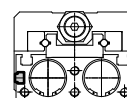
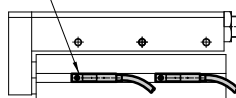
150

PST20NS-50



PST20NS-50-Auto Switch

PRO-A1, PRO-B1



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

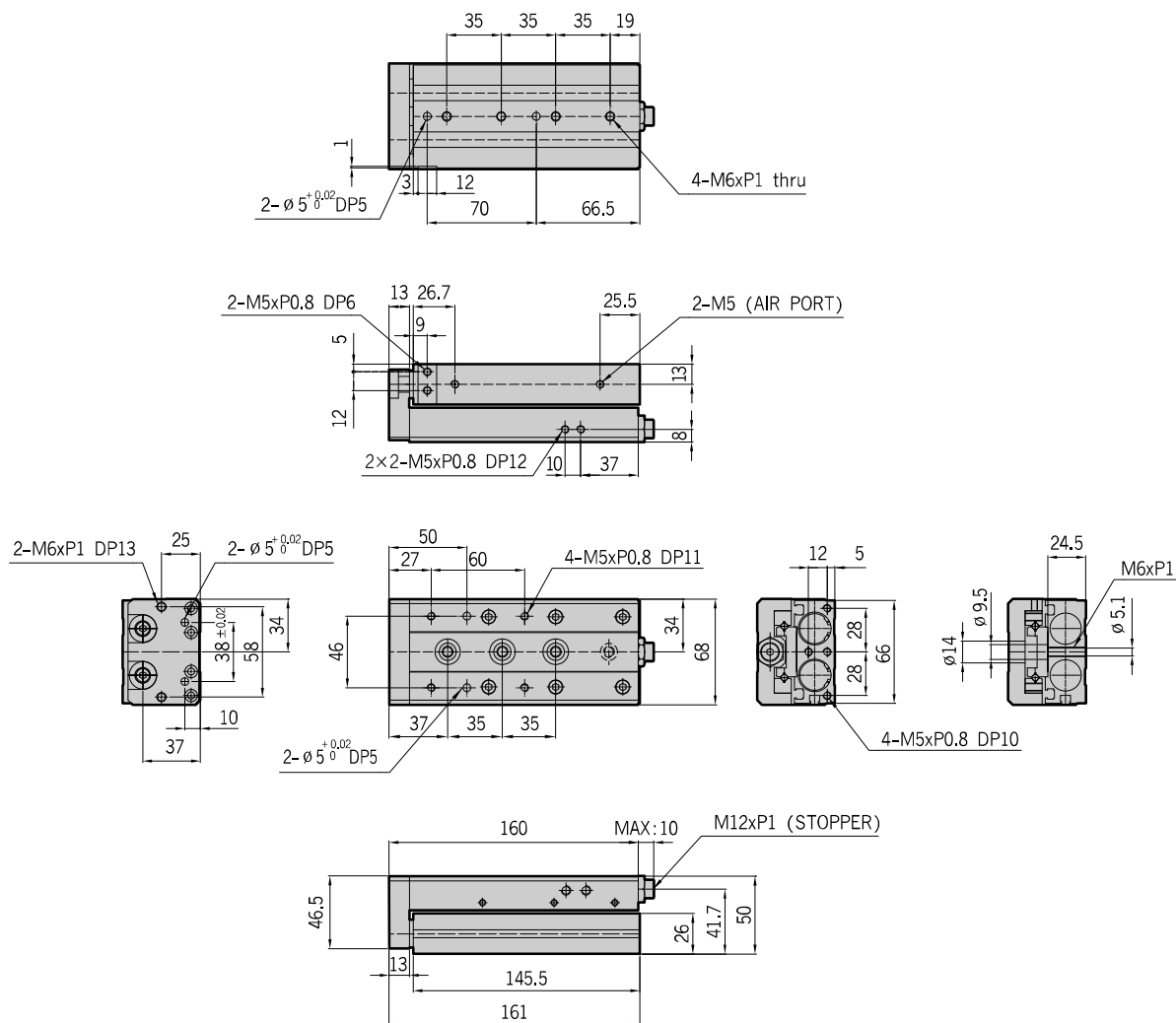
75

100

125

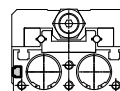
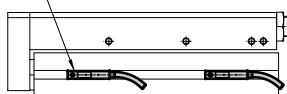
150

PST20NS-75



PST20NS-75-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

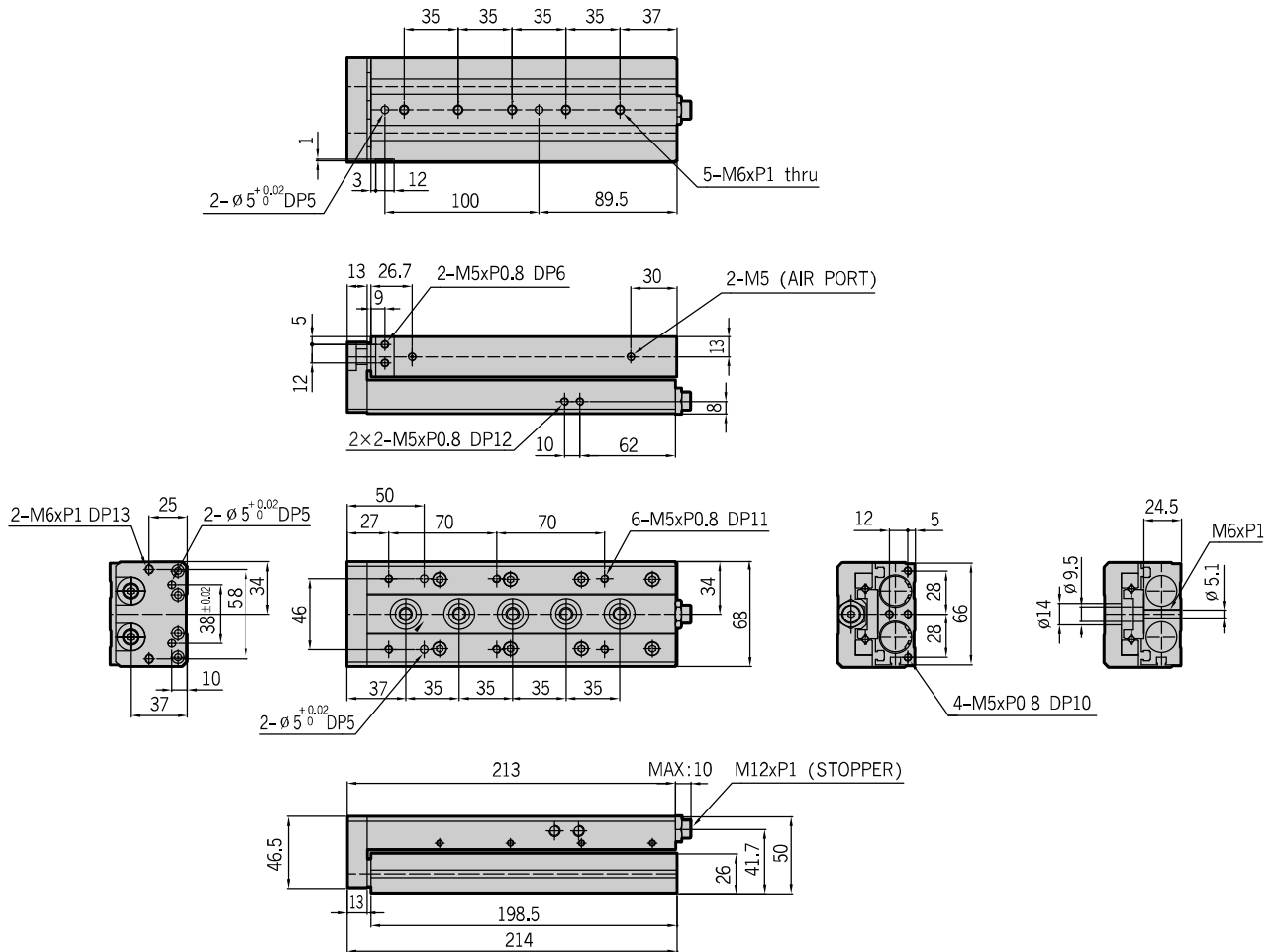
PSW

PST-NS Series

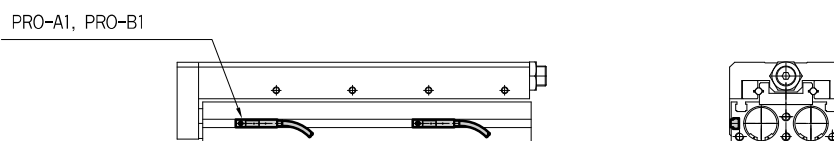
06NS 08NS 12NS 16NS **20NS** 25NS

10 20 30 40 50 75 **100** 125 150

PST20NS-100



PST20NS-100-Auto Switch



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

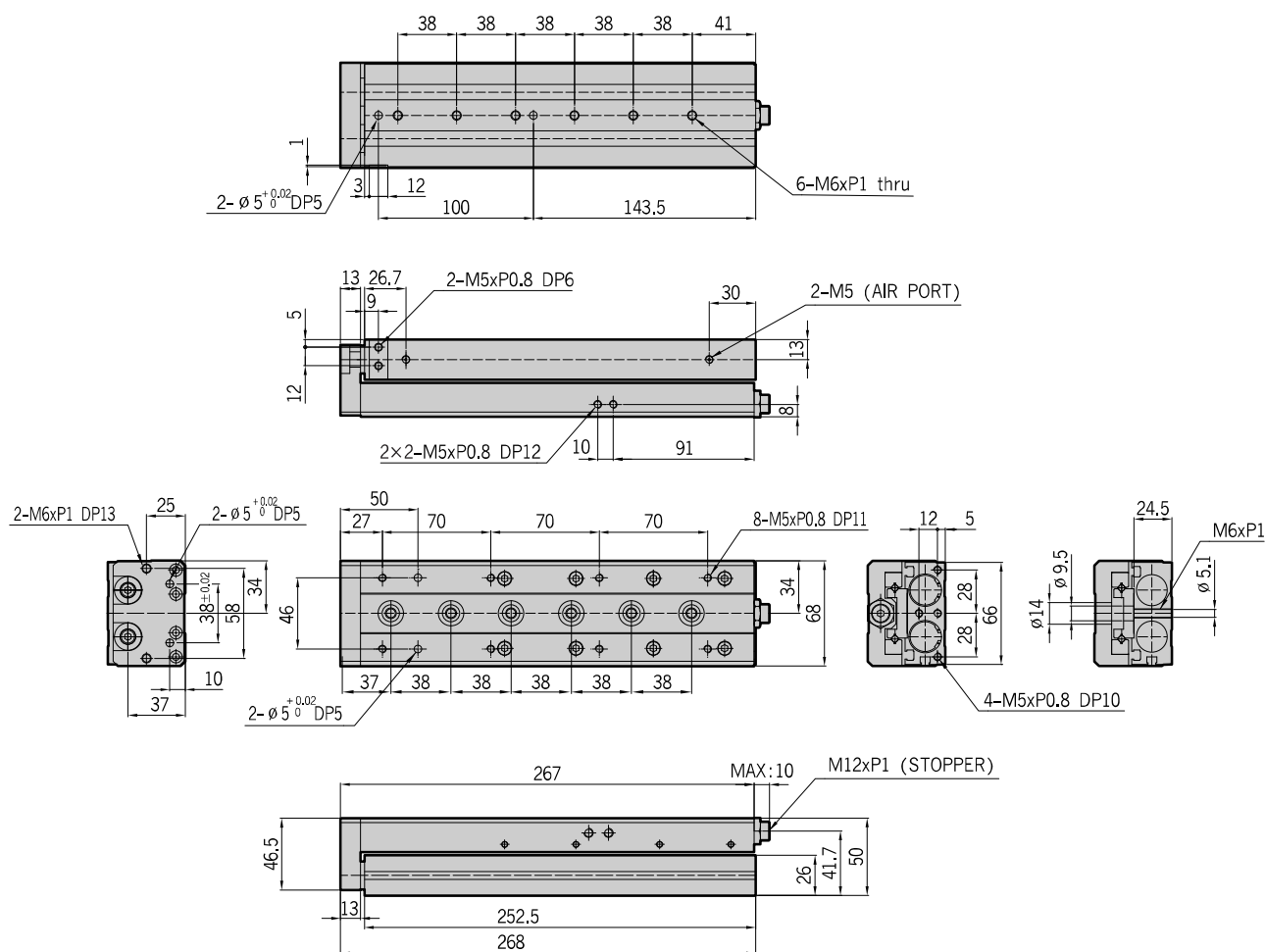
75

100

125

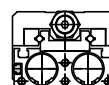
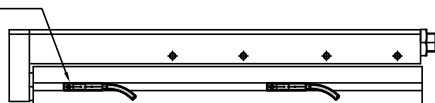
150

PST20NS-125



PST20NS-125-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

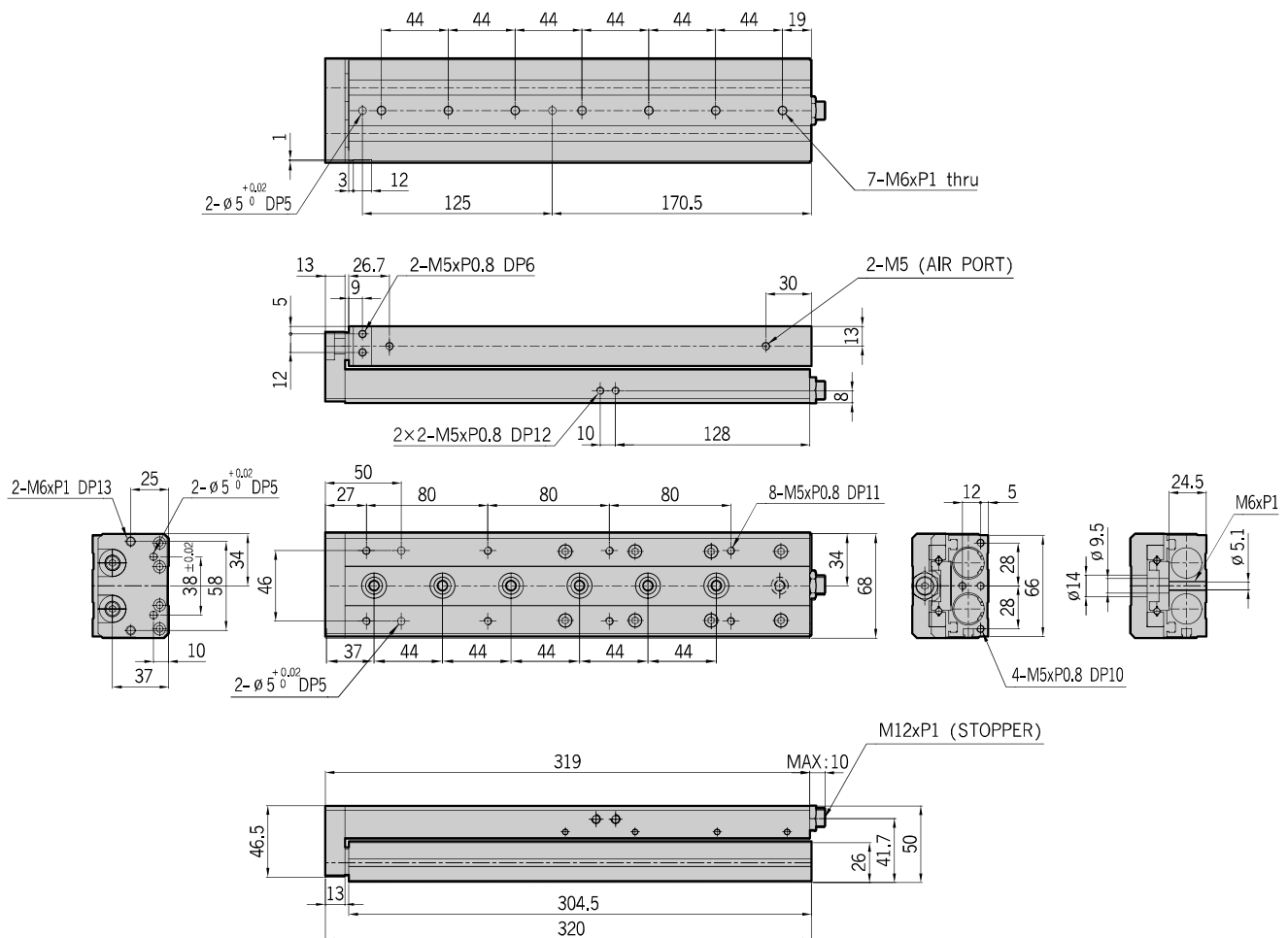
75

100

125

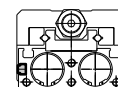
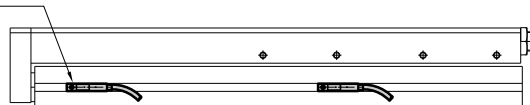
150

PST20NS-150



PST20NS-150-Auto Switch

PRO-A1, PRO-B1



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

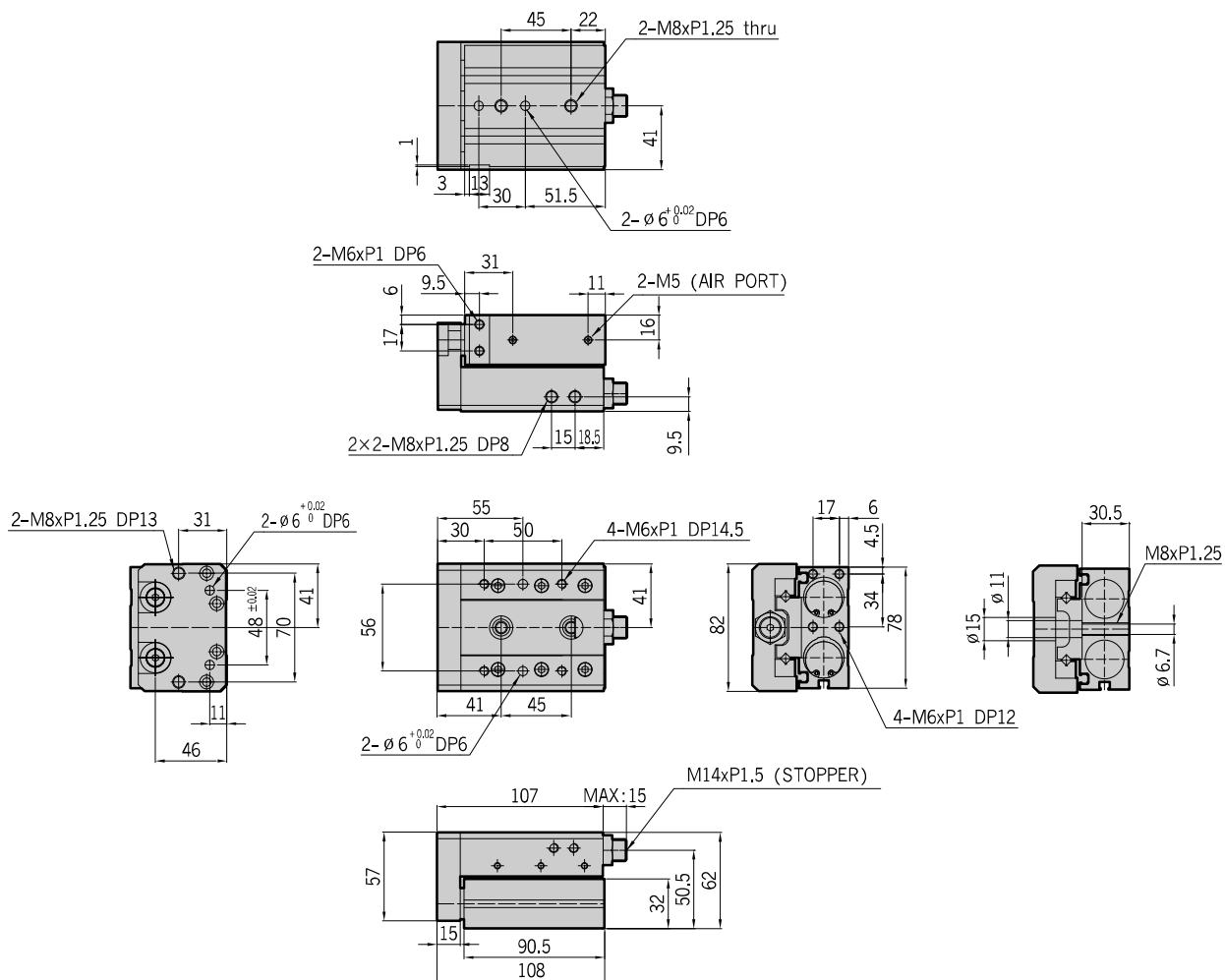
75

100

125

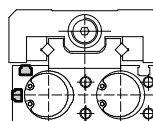
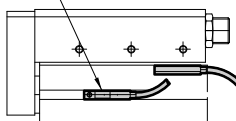
150

PST25NS-10,20,30



PST25NS-10,20,30-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

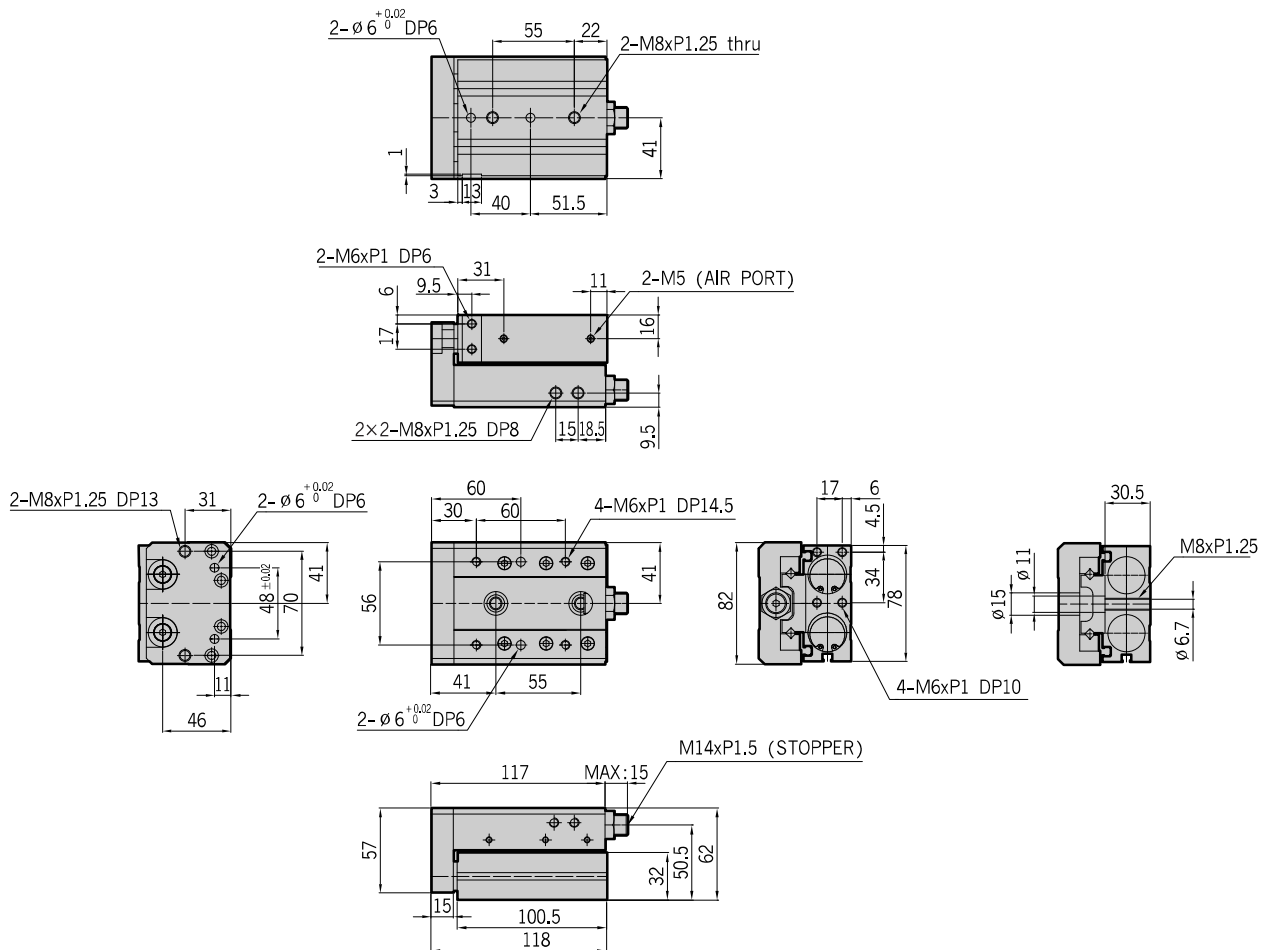
75

100

125

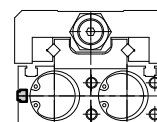
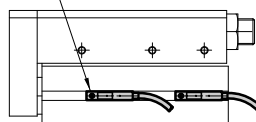
150

PST25NS-40



PST25NS-40-Auto Switch

PRO-A1, PRO-B1



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

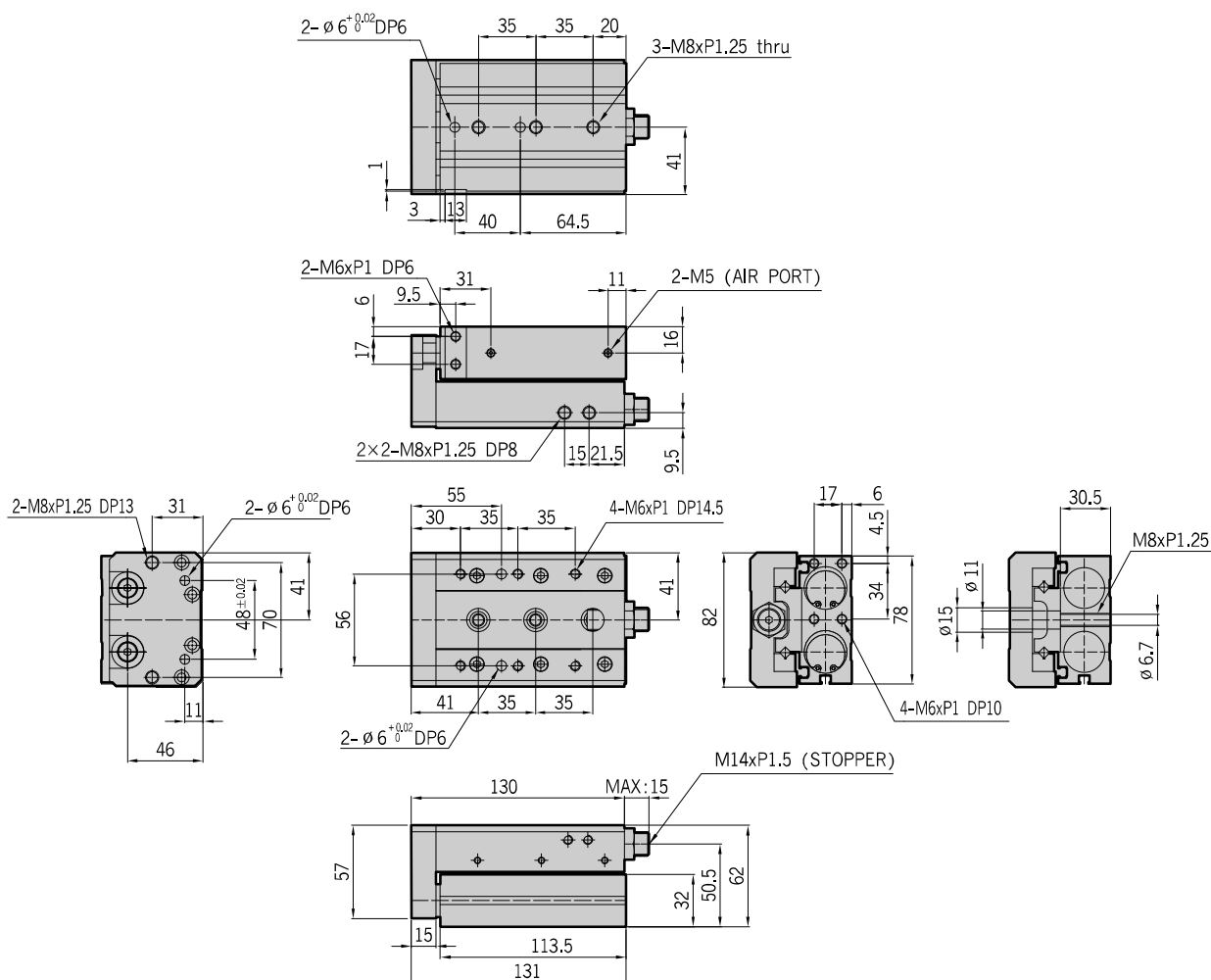
75

100

125

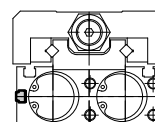
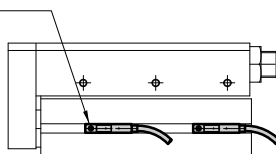
150

PST25NS-50



PST25NS-50-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

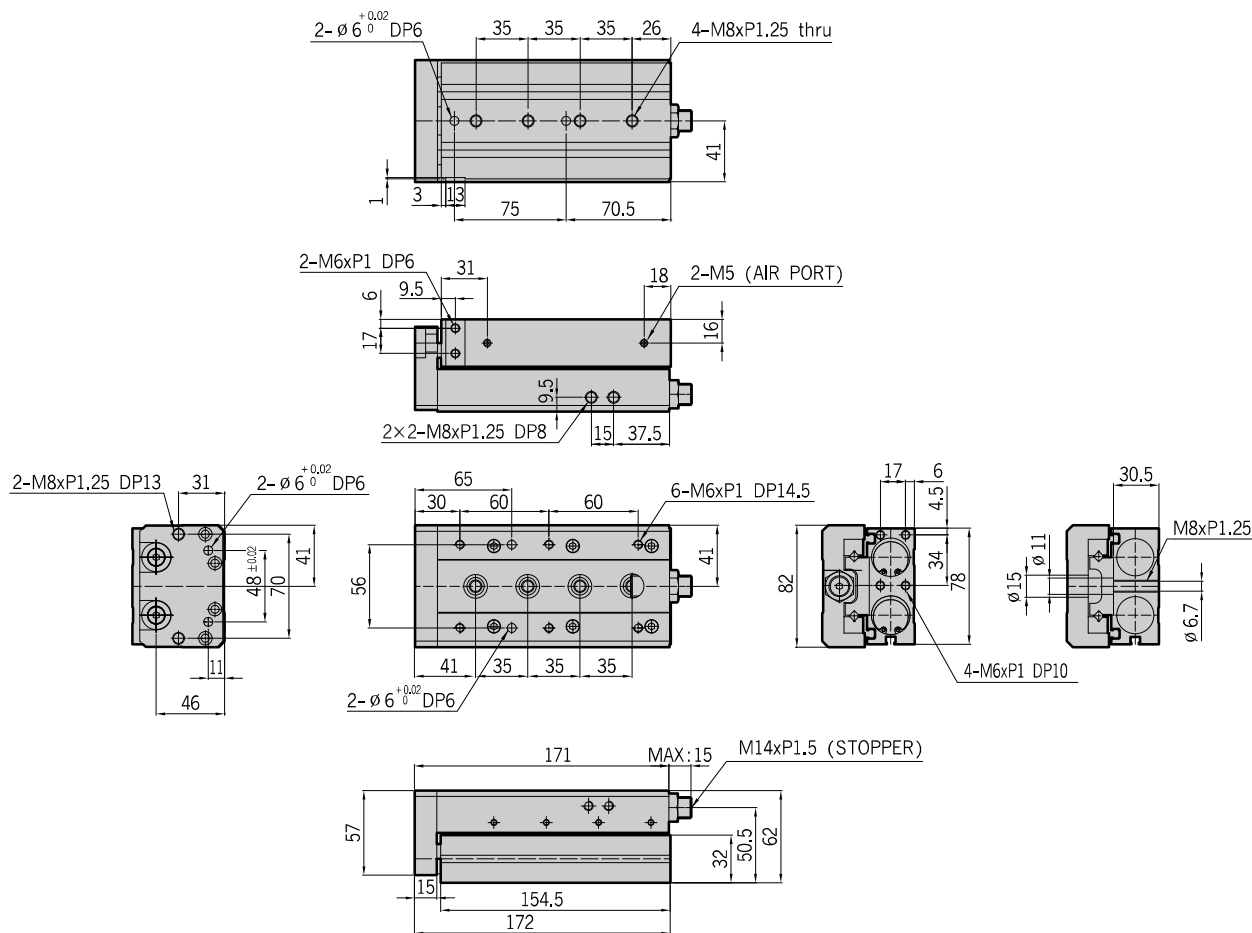
75

100

125

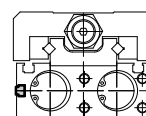
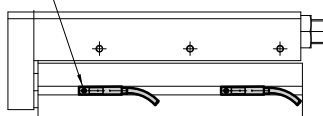
150

PST25NS-75



PST25NS-75-Auto Switch

PRO-A1, PRO-B1



06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

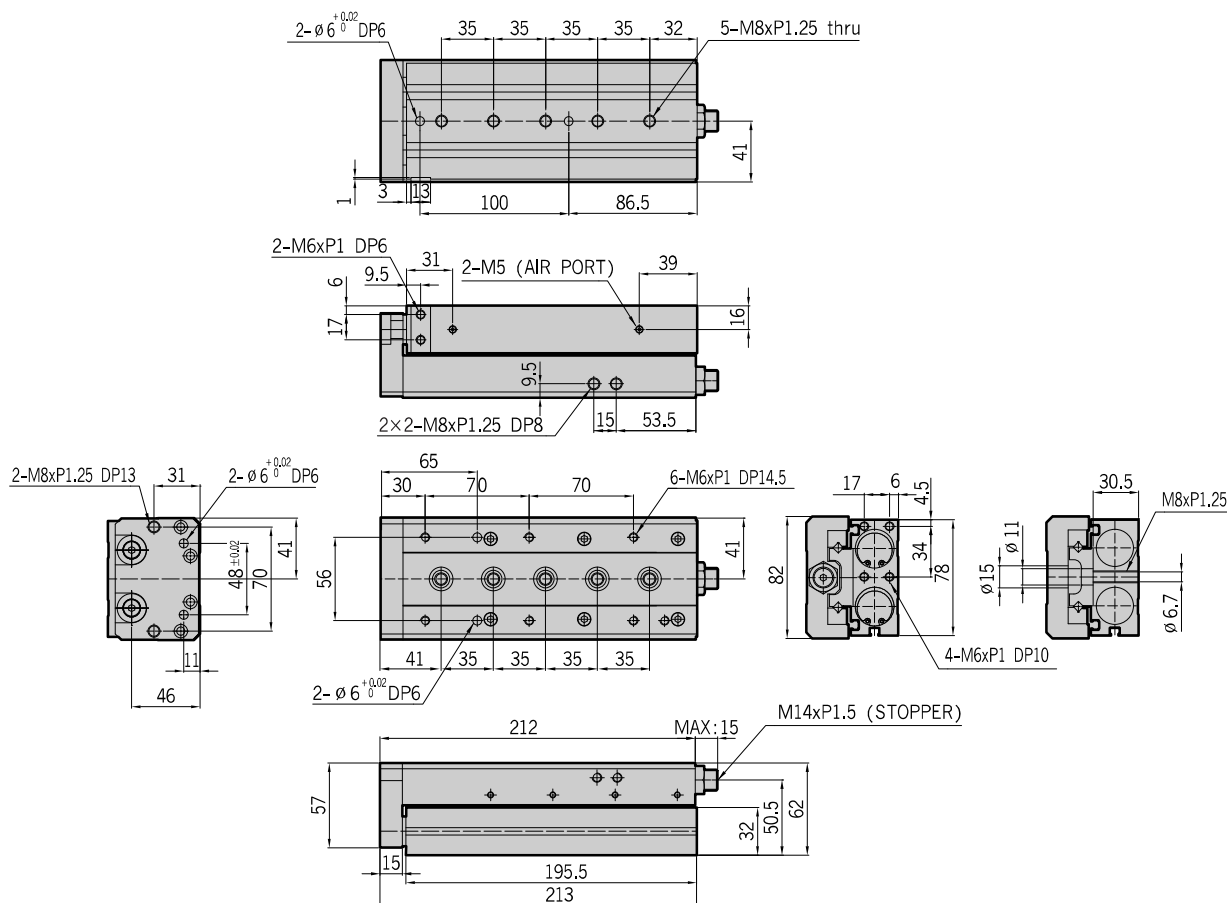
75

100

125

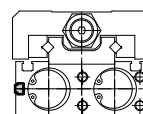
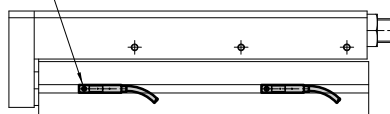
150

PST25NS-100



PST25NS-100-Auto Switch

PRO-A1, PRO-B1



PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW

PST-NS Series

06NS

08NS

12NS

16NS

20NS

25NS

10

20

30

40

50

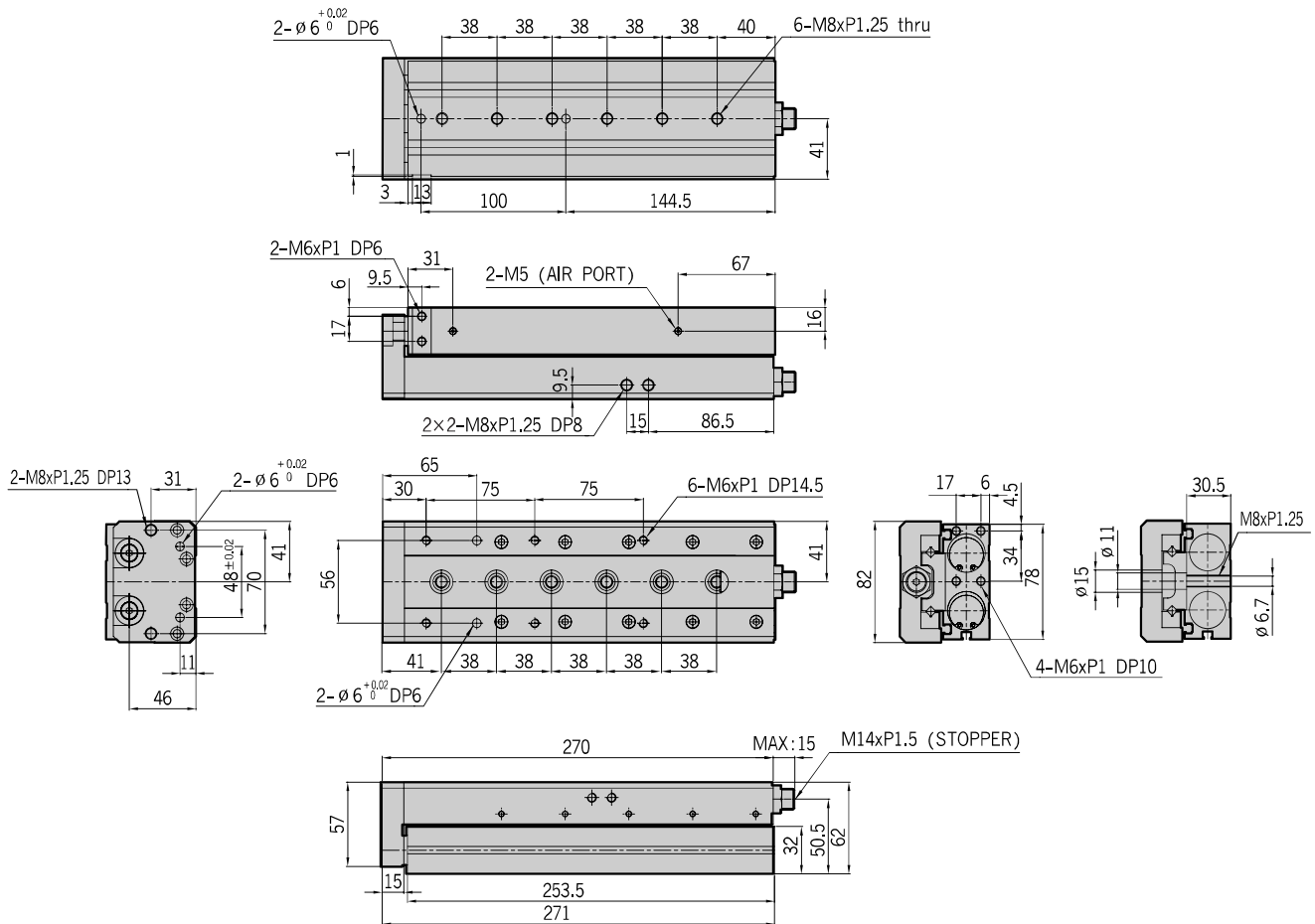
75

100

125

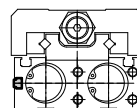
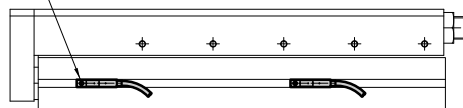
150

PST25NS-125



PST25NS-125-Auto Switch

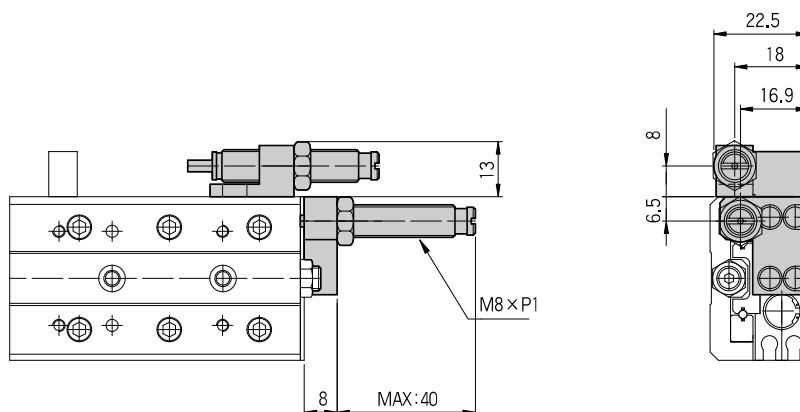
PRO-A1, PRO-B1



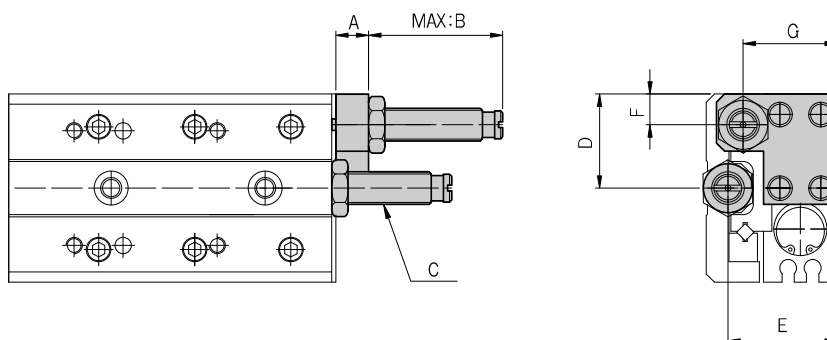
PST-NS Series

SHOCK ABSORBER Installation drawing

• PST08NS



• PST 12NS, 16NS, 20NS, 25NS

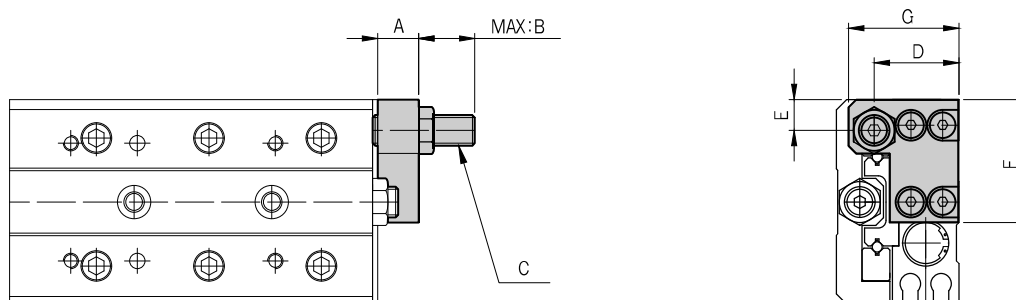


	A	B	C	D	E	F	G
PST12NS	8	40	M8×P1	23	26.1	7.5	23
PST16NS	10	45	M10×P1	28	33.2	10	27.5
PST20NS	12	55	M12×P1	34	41.7	12	35.7
PST25NS	15	75	M14×P1.5	41	50.5	13.5	41.3

※ For PST06NS, mounting Shock Absorber is not available.

Backward stopper Installation drawing

- PST 06NS, 08NS, 12NS, 16NS, 20NS, 25NS



	A	B	C	D	E	F	G
PST06NS	5	15	M5 × P0.8	14.5	5	19.5	19
PST08NS	8	15	M8 × P1	16.9	6.5	24	22.4
PST12NS	8	20	M8 × P1	23	7.5	27	29.5
PST16NS	10	20	M10 × P1	27.5	10	31	35.5
PST20NS	12	25	M12 × P1	35.7	12	41	48.7
PST25NS	15	25	M14 × P1.5	41.3	13.5	48	60.3

PRECISION

PST-NS

PST

SC

ST

STS-L

SD

PSW