



Twin-rod cylinder——TN, TR Series

Product series

Series name	Acting type	Bore size	Collocation of sensor switch	
			CS1-J	DS1-J
 <p>TN Series</p>	Double acting	10	●	●
		16	●	●
		20	●	●
		25	●	●
		32	●	●
 <p>TR Series</p>	Double acting	6	●	●
		10	●	●
		16	●	●
		20	●	●
		25	●	●
		32	●	●
Page	286	288	397	

Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion;
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder;
- The medium used by cylinder shall be filtered to 40 μ m or below.
- As both the front cover and piston are short, too large stroke can not be selected.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- The cylinder shall avoid radial load in operation to maintain the normal and extend service life.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust cap shall be inserted into the inlet and outlet ports. As the precision of the manufacture and guide is high, Please do not dismantle the fixed block or cylinder cover .

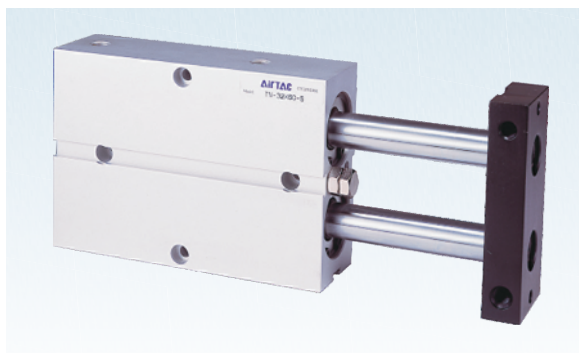
Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm ²)	Operating pressure(MPa)						
				0.1	0.2	0.3	0.4	0.5	0.6	0.7
6	4	Double acting Push side	56.5	5.7	113.	17.0	22.6	28.3	33.9	39.6
		Pull side	31.4	3.1	6.3	9.4	12.6	15.7	18.8	22.0
10	6	Double acting Push side	157.1	15.7	31.4	47.1	62.8	78.6	94.3	110.0
		Pull side	100.5	10.1	20.1	30.2	40.2	50.3	60.3	70.4
16	8	Double acting Push side	402.1	40.2	80.4	120.6	160.8	201.1	241.3	281.5
		Pull side	301.6	30.2	60.3	90.5	120.6	150.8	181.0	211.1
20	10	Double acting Push side	628.3	62.8	125.7	188.5	251.3	314.2	377.0	439.8
		Pull side	471.2	47.1	94.2	141.4	188.5	235.6	282.7	329.8
25	12	Double acting Push side	981.7	98.2	196.4	294.5	392.7	490.9	589.0	687.2
		Pull side	755.6	75.6	151.1	226.7	302.2	377.8	453.4	528.9
32	16	Double acting Push side	1608.5	160.9	321.7	482.6	643.4	804.3	965.1	1126.0
		Pull side	1206.4	120.6	241.3	361.9	482.6	603.2	723.8	844.5

Twin-rod cylinder

TN Series



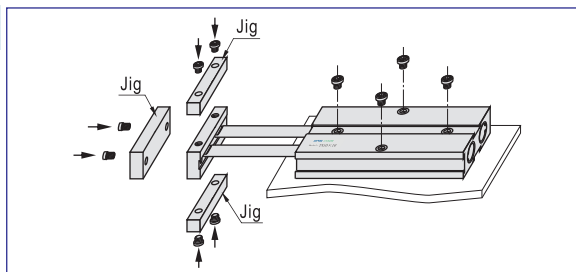
Symbol



Product feature

1. Enterprises standard is implemented.
2. Embedded installation and fixation mode saves the installation space.
3. It is good resistance to bending and twisting moments.
4. Mounting holes on three sides facilitates multi-position mounting.
5. Bumper in front of the barrel can adjust the stroke of cylinder and relieve impact.
6. Standard configuration of this series has magnet and the type without magnet is not available.

How to mount



Specification

Bore size(mm)	10	16	20	25	32
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μm filter element)				
Operating pressure	0.1~1.0MPa(14~145psi)				
Proof pressure	1.5MPa(215psi)				
Temperature °C	-20~70				
Speed range mm/s	30~500				
Adjustable stroke mm	-10~0				
Stroke tolerance	+1.0 0				
Cushion type	Bumper				
Non-rotating tolerance ①	± 0.4°		± 0.3°		
Port size ②	M5 × 0.8				1/8"

① Retract position.

② PT thread, NPT thread and G thread are available. Add) Refer to P397~420 for detail of sensor switch.

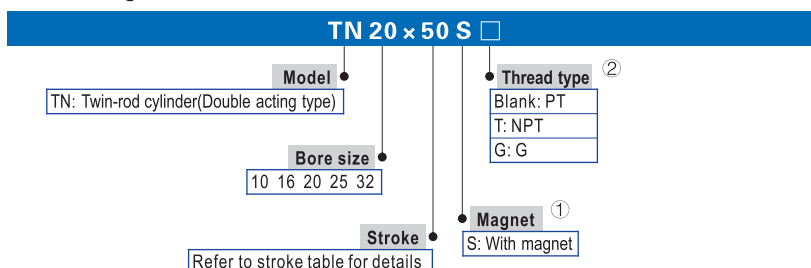
Stroke

Bore size (mm)	Standard stroke (mm)													Max. stroke	
10	10	20	30	40	50	60	70	80	90	100				100	
16	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
20	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
25	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
32	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

Ordering code



① TN Series are all with magnet.

② When the thread is standard, the code is blank.

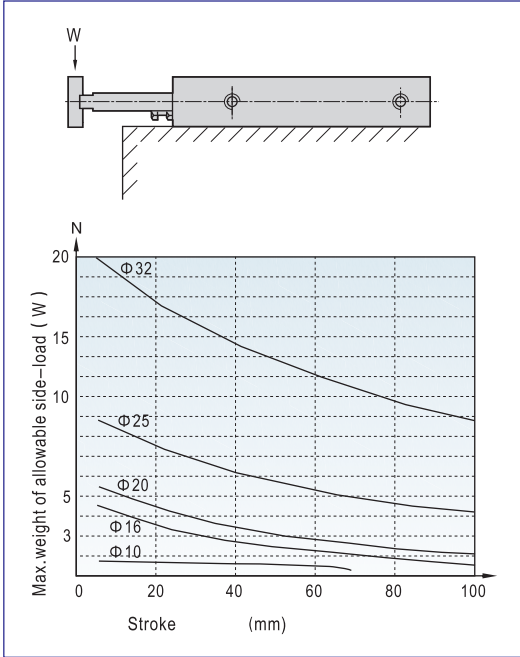
Inner structure and material of major parts

NO.	Item	Material	NO.	Item	Material
1	Piston rod B	Φ 32 S45C Other SUS304	12	Body	Aluminum alloy
2	Screw	Carbon steel	13	Bumper	TPU
3	Bumper	POM	14	Magnet holder	Φ 10 SUS303 Other Aluminum alloy
4	Adjustable nut	Carbon steel	15	Piston seal	NBR
5	Piston rod A	S45C	16	Wear ring	Wear resistant material
6	Fixing plate	Free cutting steel	17	Piston	Φ 10 SUS303 Other Aluminum alloy
7	Screw	Carbon steel	18	Seal ring	NBR
8	C clip	Spring steel	19	Bumper	TPU
9	Wiper seal	NBR	20	Back cover	Aluminum alloy
10	Front cover	Aluminum alloy	21	Magnet	Sintered metal(Neodymium-iron-boron)
11	O-ring	NBR			

Twin-rod cylinder

TN Series

Max. weight of allowable side-load



Dimensions

Φ 10

Φ 16-Φ 25

Φ 32

Table 1: Item \ Stroke

Item \ Stroke	10	20	30	40	50	60	70	80	90	100
LB	30	30	35	40	45	50	55	60	65	70

Table 2: Bore size \ Item

Bore size \ Item	A	AB	AC	B	BA	C	CA	D	DA	G	H	J	JB
16	68	15	53	54	53	21	20	8	7	24	6	2-Sides: Φ 7.5 Dp: 7.5 Thru.hole : Φ 4.5	20
20	78	20	58	62	61	25	24	10	10	28	8	2-Sides: Φ 7.5 Dp: 7.5 Thru.hole : Φ 4.5	20
25	81	19	62	73	72	30	29	12	9	34	10	2-Sides: Φ 7.5 Dp: 7.5 Thru.hole : Φ 4.5	30

Table 3: Bore size \ Item

Bore size \ Item	K	KB	MB	PA	PB	R
16	M4×0.7 Dp: 5	34	47	22	11	3
20	M4×0.7 Dp: 5	44	55	25	12	3.5
25	M4×0.7 Dp: 6	56	66	27	12	6

Table 4: Bore size \ Item

Bore size \ Item	L	LB											LC			
Stroke ≤		10	20	30	40	50	60	70	80	90	100	125	150	175	200	
16	2-Sides: Φ 8 Dp: 4.5 Thru.hole : Φ 4.5	30	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	47
20	2-Sides: Φ 8 Dp: 4.5 Thru.hole : Φ 4.5	35	35	40	45	50	55	60	65	70	75	87.5	100	112.5	125	55
25	2-Sides: Φ 8 Dp: 4.5 Thru.hole : Φ 4.5	40	40	45	50	55	60	65	70	75	80	92.5	105	117.5	130	66


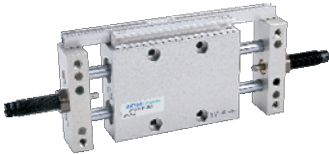
Table 5: Item \ Stroke

Item \ Stroke	10	20	30	40	50	60	70	80	90	100	125	150	175	200
LB	45	50	55	60	65	70	75	80	85	90	102.5	115	127.5	140
PA	35							40						



Slide table cylinder—STW Series

Product series

Series name	Acting type	Bore size	Collocation of sensor switch	
			CS1-G	DS1-G
STWA 	Double acting	10	●	●
STWB 		16	●	●
		20	●	●
		25	●	●
		32	●	●
Page	296	397		

Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion;
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of contaminants into the cylinder.
- The medium used by cylinder shall be filtered to 40 μm or below.
- The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend service life.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface.
Anti-dust cap shall be inserted into the inlet and outlet ports. As the precision of the manufacture and guide is high, dismantle the fixed block or cylinder cover.



STW

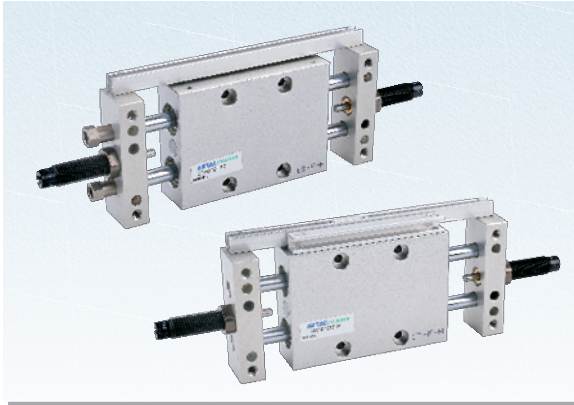
Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm ²)	Operating pressure (MPa)						
				0.1	0.2	0.3	0.4	0.5	0.6	0.7
10	6	Double acting	100.5	10.1	20.1	30.2	40.2	50.3	60.3	70.4
16	10	Double acting	245.0	24.5	49.0	73.5	98.0	122.5	147.0	171.5
20	12	Double acting	402.1	40.2	80.4	120.6	160.8	201.1	241.3	281.5
25	16	Double acting	579.6	58.0	115.9	173.9	231.8	289.8	347.8	405.7
32	20	Double acting	980.2	98.0	196.0	294.1	392.1	490.1	588.1	686.1

Slide table cylinder

STW Series



Specification

Bore size(mm)	10	16	20	25	32
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μ m filter element)				
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10bar)				
Proof pressure	1.5MPa(215psi)(15bar)				
Temperature °C	-20~70				
Speed range mm/s	30~500				
Stroke tolerance	+1.0 0				
Cushion type	Shock absorber				
Non-rotating tolerance ①	± 0.1°	± 0.05°		± 0.03°	
Port size ②	M5 × 0.8			1/8"	

① Retract position.

② PT thread, NPT thread and G thread are available. Add) Refer to P397~420 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)							Max. std stroke
10	25	50	75	100				100
16, 20, 25, 32	25	50	75	100	125	150	175	200

Note) Consult us for non-standard stroke.

Ordering code

STW B 25 × 50 S □

- Model**
 - STW: Slide table cylinder(Double acting type)
- Mounting type**
 - A: Fixing plate mounted
 - Sensor switch mounting rail
 - Magnet
 - Port
 - Plug
 - B: Body mounted
 - Magnet mounting rail
 - Sensor switch mounting rail
 - Magnet
 - Port
- Thread type** ①
 - Blank: PT
 - T: NPT
 - G: G
- Magnet**
 - S: With magnet
- Stroke**
 - Refer to stroke table for details
- Bore size**
 - 10 16 20 25 32

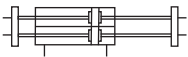
① When the thread is standard, the code is blank.

Inner structure and material of major parts

(STWA16-S, Stroke 25mm)		NO.	Item	Material
		1	Hexagon nut	Carbon steel
		2	Fixing plate	Aluminum alloy
		3	Washer	NBR
		4	Magnet	Sintered metal (Neodymium-iron-boron)
		5	Body	Aluminum alloy
		6	Piston rod	Carbon steel
		7	Sensor switch mounting rail	Aluminum alloy
		8	Piston	Aluminum alloy
		9	O-ring	NBR
		10	O-ring	NBR
		11	C clip	Spring steel
		12	Pin	Carbon steel
		13	Plug screw	Carbon steel
		14	Shock absorber	Combination
		15	O-ring	NBR
		16	Bumper	Carbon steel
		17	O-ring	NBR
		18	Front cover	Aluminum alloy
		19	Piston seal	NBR
		20	Screw	Carbon steel
		21	Countersink screw	Carbon steel

(STWA16-S, Stroke 50~200mm)		NO.	Item	Material
		1	Hexagon nut	Carbon steel
		2	Fixing plate	Aluminum alloy
		3	Washer	NBR
		4	Magnet	Sintered metal (Neodymium-iron-boron)
		5	Body	Aluminum alloy
		6	Piston rod	Carbon steel
		7	Sensor switch mounting rail	Aluminum alloy
		8	Piston	Aluminum alloy
		9	O-ring	NBR
		10	O-ring	NBR
		11	C clip	Spring steel
		12	Pin	Carbon steel
		13	Plug screw	Carbon steel

Symbol



Product feature

- Both body and fixing plates can be installed.
- Three sets of air inlet and outlet are available for customer to choose and convenient for piping.
- The structure of double-piston rod provides the good performance of anti-bending and anti-torsion and can bear relatively stronger movement radial and load.
- Buffer device such as the integrated shock absorber can effectively slowdown impact velocity and extend life.



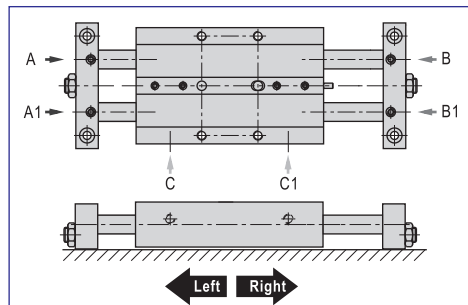
STW

Slide table cylinder

STW Series

Installation and application

1. There are 3 sets of air inlet and outlet ports on body and fixing plates, which are available for pipe connection from three directions.



2. When air inlets and outlets are connected, the movement direction of cylinder is different. For example, when fixing plate is mounted on the machine, it's corresponding movement is indicated as the table below;

Pressure port	A	A1	B	B1	C	C1
Movement direction	Right	Left	Right	Left	Left	Right

3. Loading of piston rod—reference value for deflection

The fixing plates are fixed, the loading is acting on the center of body

Allowable deflection value (mm)

Model	Load(N)\Stroke	100	200
STW10	9.81	0.07	—
STW16	39.2	0.05	0.20
STW20	49	0.04	0.15
STW25	58.8	0.02	0.08
STW32	98.1	0.02	0.07

The body is fixed, the loading is acting on the fixing plates

Deflection value (mm)

Model	Load(N)\Stroke	50	100	100	200
STW10	2.94	0.06	0.30	—	—
STW16	4.84	0.03	0.10	0.25	0.45
STW20	7.48	0.03	0.09	0.18	0.35
STW25	9.81	0.03	0.09	0.16	0.25
STW32	29.42	0.02	0.05	0.10	0.15

4. Reference value of allowable moment (M1, M2 and M3)

Bore size	Allowable bending moment(M2)
10	0.11
16	0.55
20	0.81
25	1.03
32	2.70

5. About shock absorber

- 1) Shock absorbers are consumable parts. When a decrease in energy absorption capacity is noticed, it must be replaced. Refer to the table below for shock absorber type.
- 2) Never loosen the bottom screw of the shock absorber. (It is not an adjustment screw.) That may cause oil leakage.
- 3) Refer to the table below for tightening torques of the shock absorber setting nut.

Cylinder	Shock absorber	Tightening torques(Nm)
STW10	ACA0806-1N	1.67
STW16	ACA0806-1N	1.67
STW20	ACA1007-1N	3.14
STW25	ACA1007-1N	3.14
STW32	ACA1412-1N	10.8

Never loosen the bottom screw of the shock absorber That may cause oil leakage.

6. About sensor switch

- 6.1) STW series are all with magnet, the relevant sensor switches are CS1-G、DS1-G. Please refer to page 419-442 for details.
- 6.2) The magnet locations of STWA & STWB are different, so sensor switch's position is different, please refer to below for details.

STWA

- 1) Please refer below to secure sensor switch in sensor switch mounting rail.

- 2) Adjusting sensor switch position, tightening screw to secure sensor switch.

STWB

- 1) Please refer below to secure sensor switch in sensor switch mounting rail.

- 2) Adjusting sensor switch position, tightening screw to secure sensor switch.

Mounting type

Body mounted(B)

Fixing plate mounted(A)

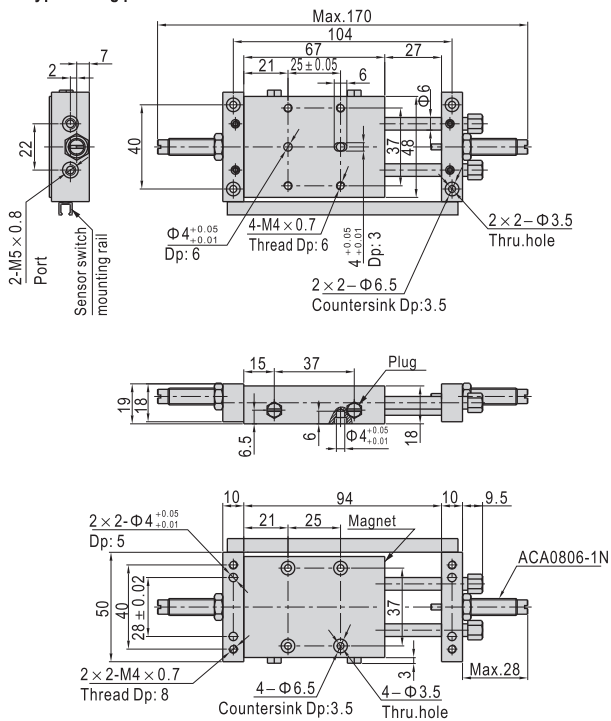
Slide table cylinder

STW Series

■ Dimensions

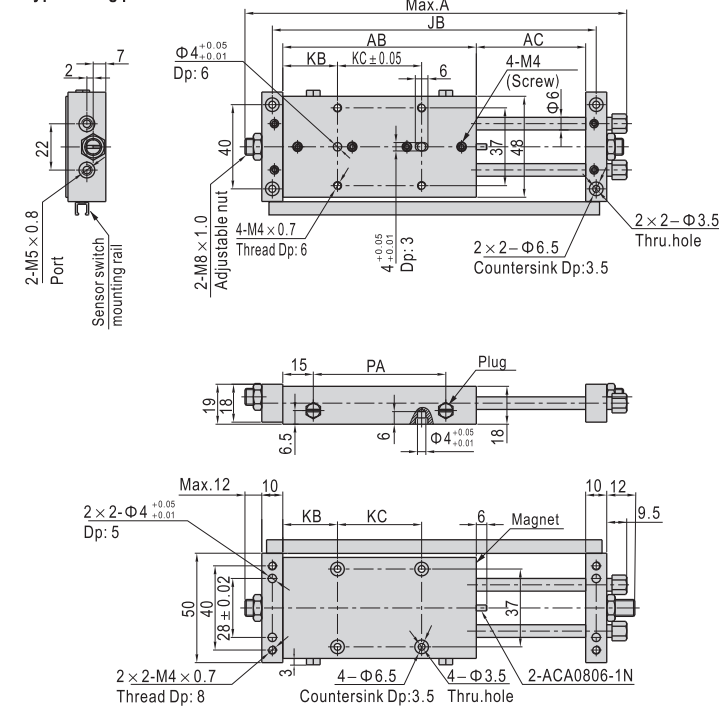
STW10 Stroke=25mm

A Type (Fixing plate mounted)

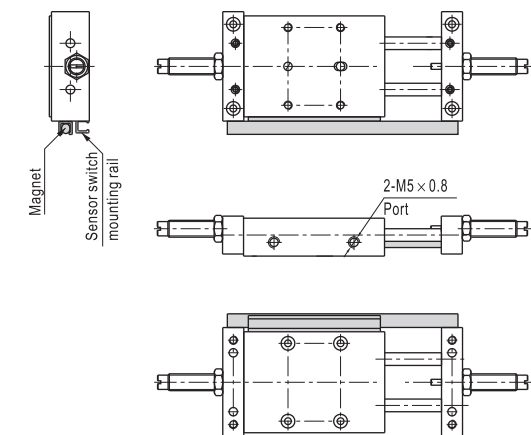


STW10 Stroke=50 75 100mm

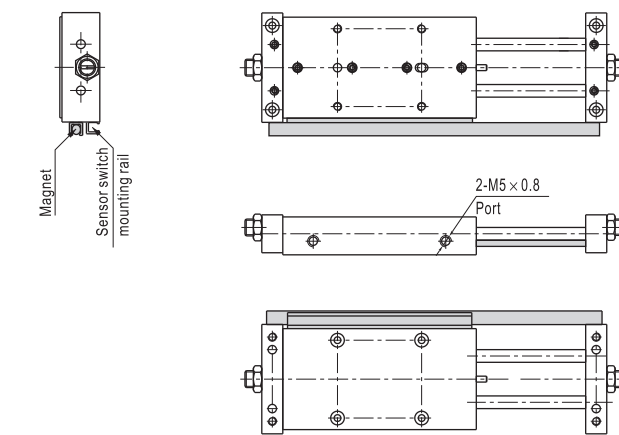
A Type (Fixing plate mounted)



B Type (Body mounted)



B Type (Body mounted)



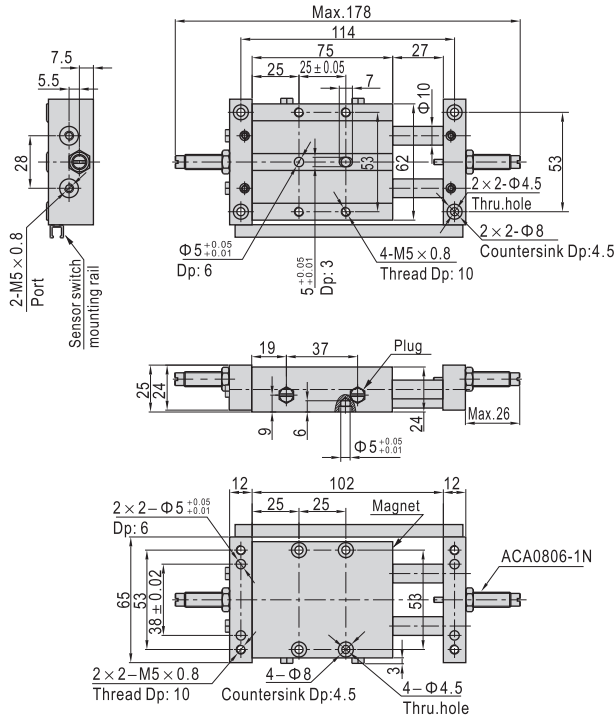
Stroke\Item	A	AB	AC	JB	KB	KC	PA
50	188	92	52	154	26	40	62
75	238	117	77	204	26	65	87
100	288	142	102	254	26	90	112

Slide table cylinder

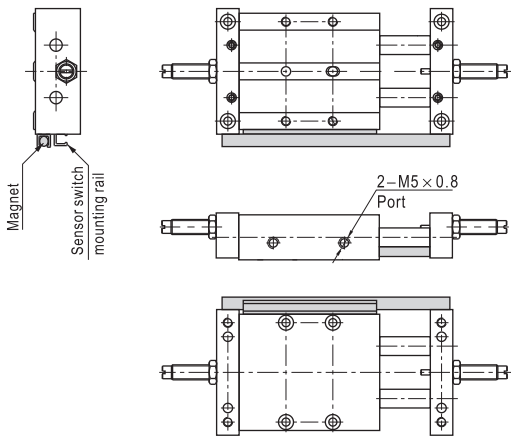
STW Series

STW16 Stroke=25mm

A Type(Fixing plate mounted)

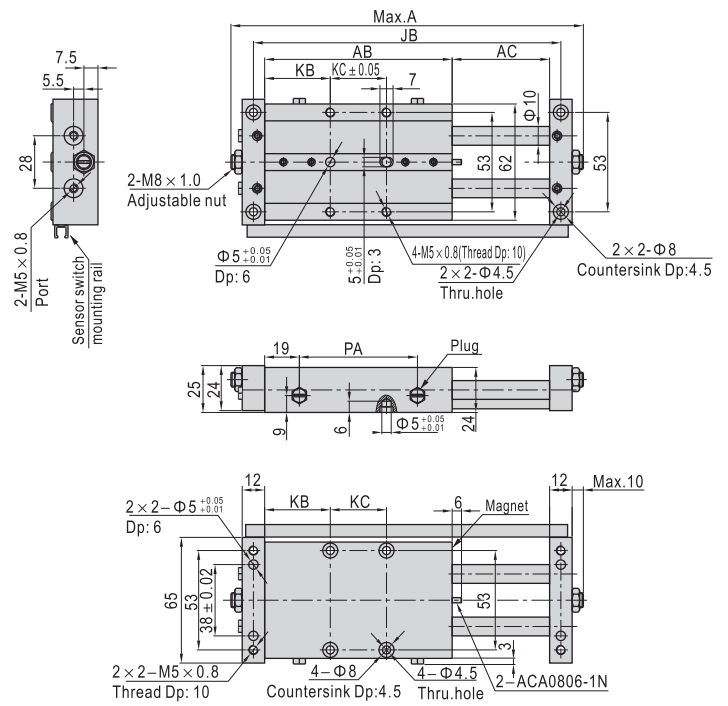


B Type(Body mounted)

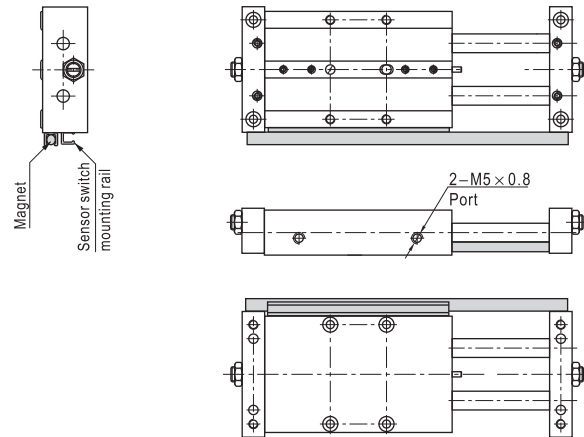


STW16 Stroke=50 75 100 125 150 175 200mm

A Type(Fixing plate mounted)



B Type(Body mounted)



Stroke\Item	A	AB	AC	JB	KB	KC	PA
50	196	100	52	164	35	30	62
75	246	125	77	214	32.5	60	87
100	296	150	102	264	37.5	75	112
125	346	175	127	314	42.5	90	137
150	396	200	152	364	55	90	162
175	446	225	177	414	67.5	90	187
200	496	250	202	464	80	90	212



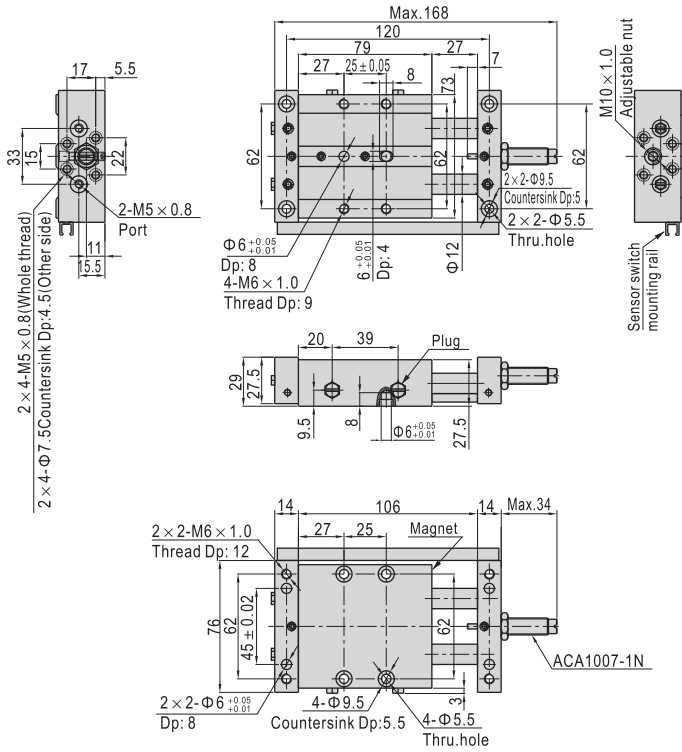
STW

Slide table cylinder

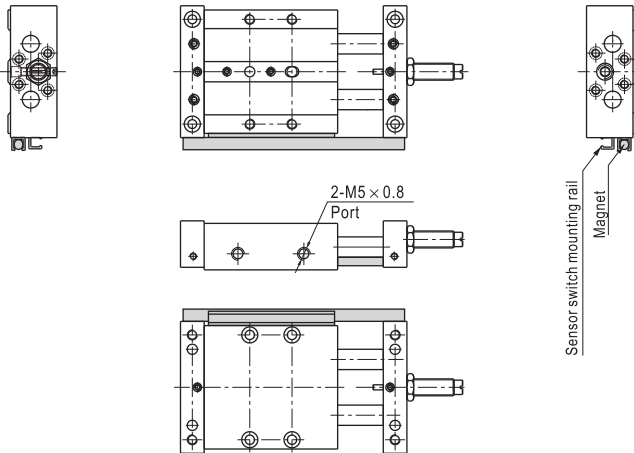
STW Series

STW20 Stroke=25mm

A Type(Fixing plate mounted)

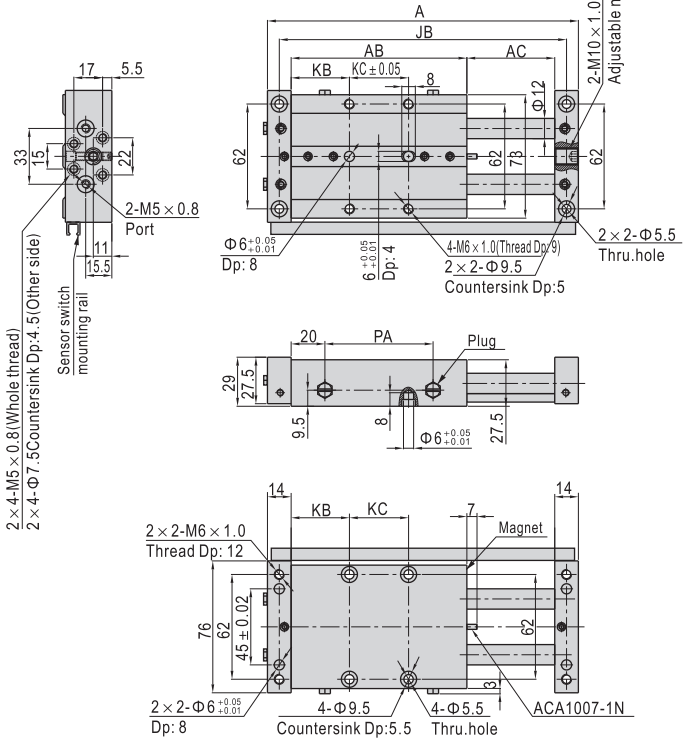


B Type(Body mounted)

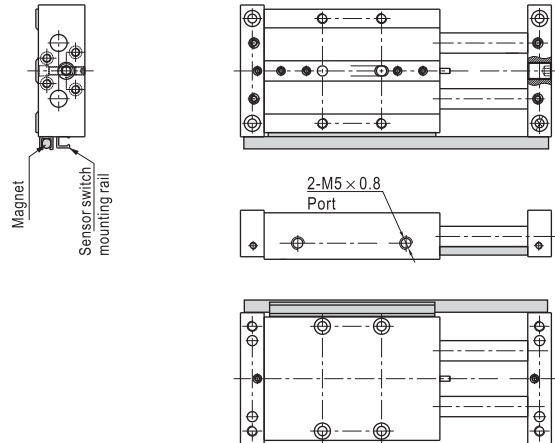


STW20 Stroke=50 75 100 125 150 175 200mm

A Type(Fixing plate mounted)



B Type(Body mounted)



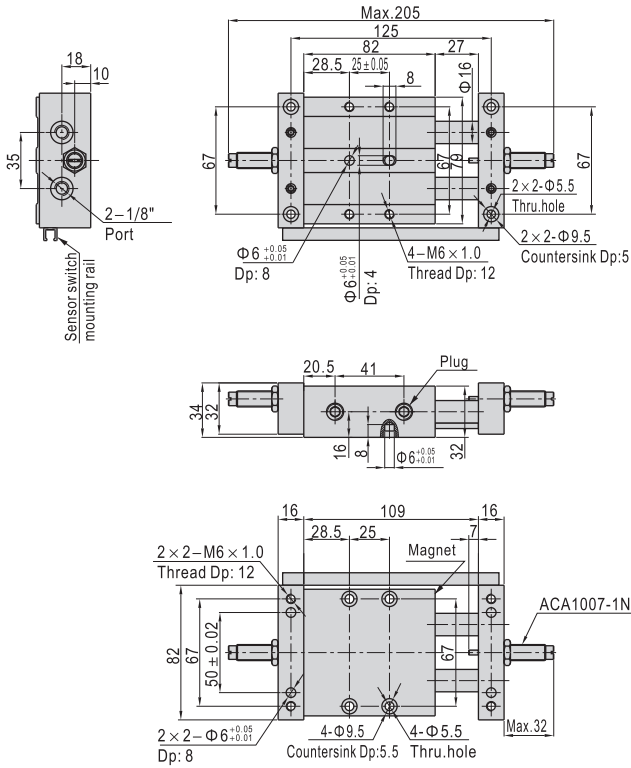
Stroke\Item	A	AB	AC	JB	KB	KC	PA
50	184	104	52	170	34.5	35	64
75	234	129	77	220	34.5	60	89
100	284	154	102	270	39.5	75	114
125	334	179	127	320	44.5	90	139
150	384	204	152	370	57	90	164
175	434	229	177	420	69.5	90	189
200	484	254	202	470	82	90	214

Slide table cylinder

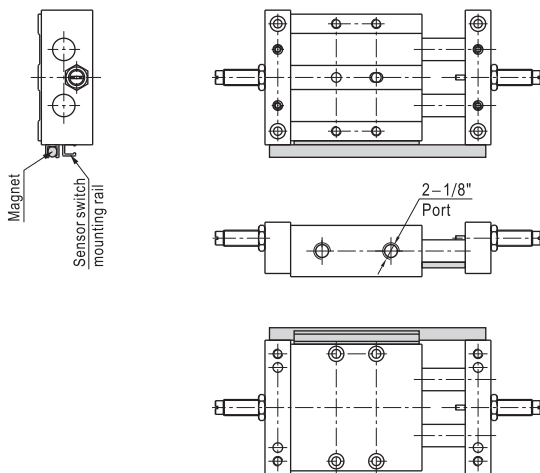
STW Series

STW25 Stroke=25mm

A Type(Fixing plate mounted)

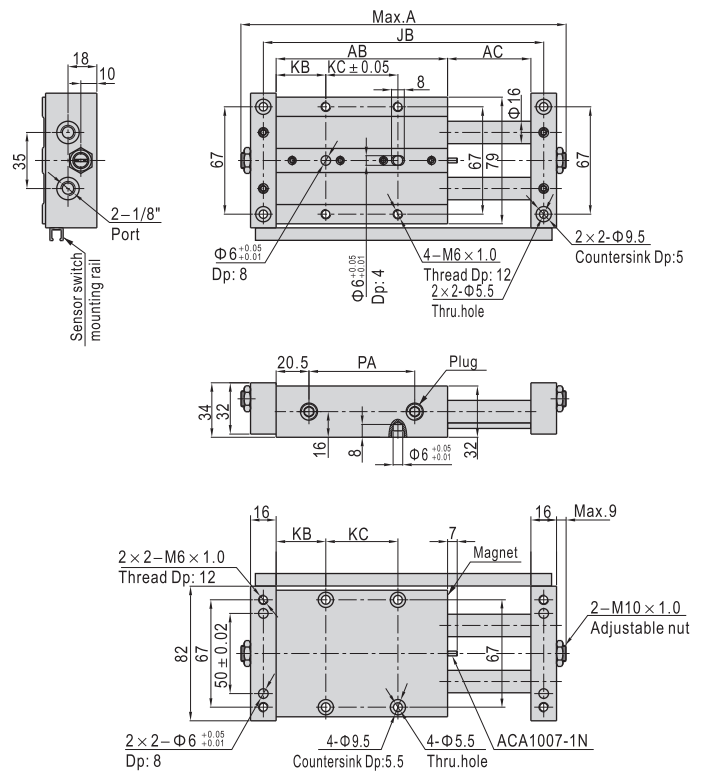


B Type(Body mounted)

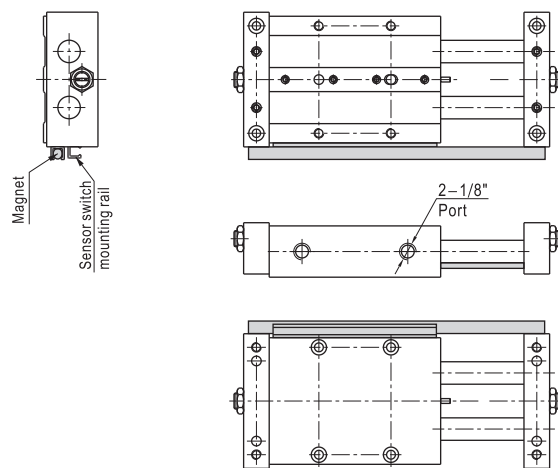


STW25 Stroke=50 75 100 125 150 175 200mm

A Type(Fixing plate mounted)



B Type(Body mounted)



Stroke\Item	A	AB	AC	JB	KB	KC	PA
50	209	107	52	175	31	45	66
75	259	132	77	225	33.5	65	91
100	309	157	102	275	33.5	90	116
125	359	182	127	325	46	90	141
150	409	207	152	375	58.5	90	166
175	459	232	177	425	71	90	191
200	509	257	202	475	83.5	90	216



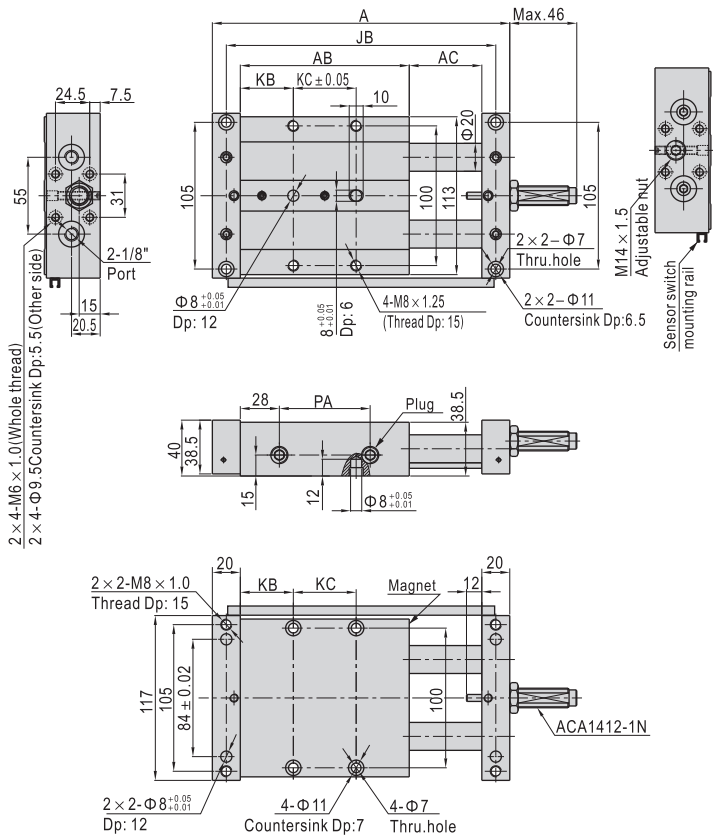
STW

Slide table cylinder

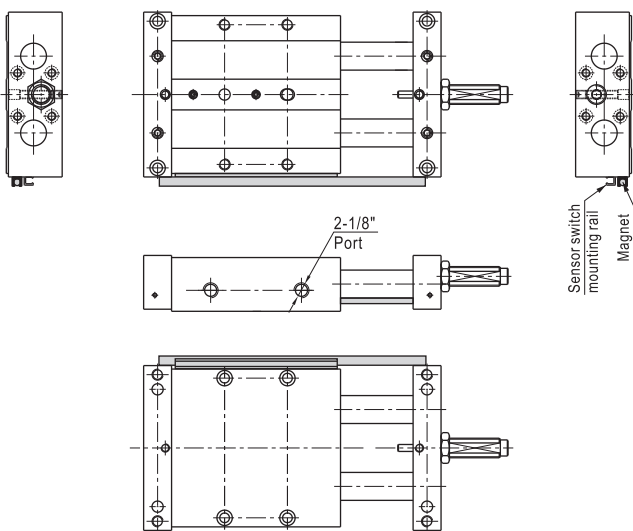
STW Series

STW32 Stroke=25 50mm

A Type(Fixing plate mounted)



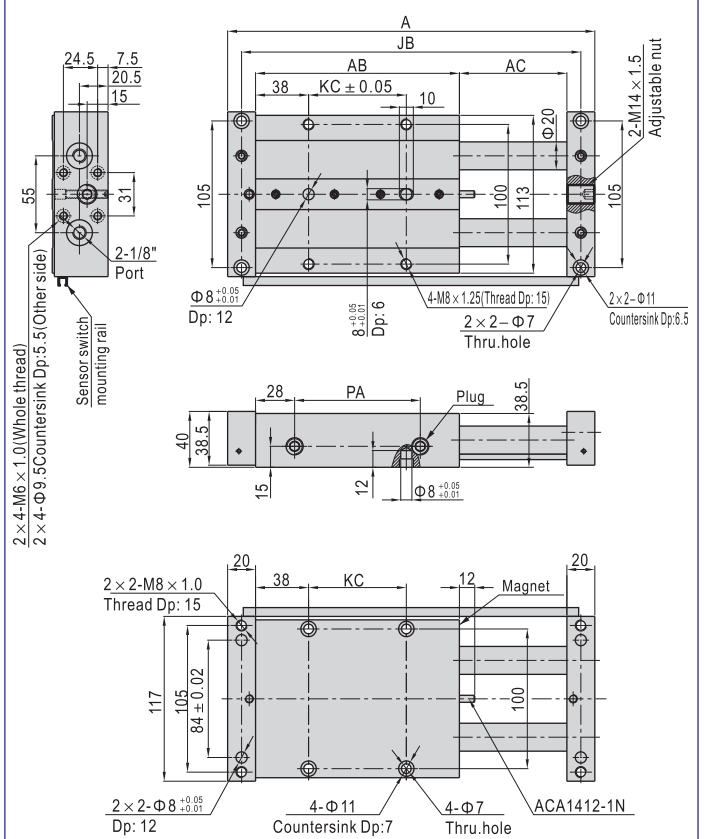
B Type(Body mounted)



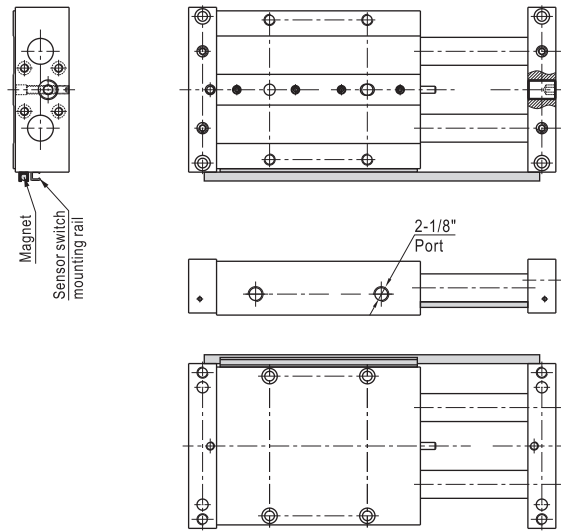
Stroke\Item	A	AB	AC	JB	KB	KC	PA
25	163	96	27	143	37	22	40
50	213	121	52	193	38	45	65

STW32 Stroke=75 100 125 150 175 200mm

A Type(Fixing plate mounted)



B Type(Body mounted)



Stroke\Item	A	AB	AC	JB	KC	PA
75	263	146	77	243	70	90
100	313	171	102	293	95	115
125	363	196	127	343	120	140
150	413	221	152	393	145	165
175	463	246	177	443	170	190
200	513	271	202	493	195	215