Series NSK

Swing Clamp Cylinder

Bore Size(mm) : Ø12, Ø16 Ø20, Ø25, Ø32, Ø40, Ø50, Ø63

- POSSIBLE TO INSTALL AUTO SWITCH IN A TUBE
- MAXIMUM OPERTING PRESSURE : 1MPA
- COMPACT SIZE
- BUILT-IN COIL SCRAPPER (Ø40~Ø63)

How to Order

N (D) SK B 20 – 20 R P – W8* S

1 2 3 4 5 6 7 8 9

1 Swing Clamp Cylinder

2 Magnet
- Blank : None
- D : Built in Magnet

3 Mount
- B : Through hole/Both ends tapped common (Standard type)
- G: Head side flange type

4 Bore Size 5 Stroke (mm)

12 : Ø12	–	10 : 10mm, 20 : 20mm
16 : Ø16	–	10 : 10mm, 20 : 20mm
20 : Ø20	–	10 : 10mm, 20 : 20mm
25 : Ø25	–	10 : 10mm, 20 : 20mm
32 : Ø32	–	10 : 10mm, 20 : 20mm
40 : Ø40	–	10 : 10mm, 20 : 20mm
50 : Ø50	–	20 : 20mm, 50 : 50mm
63 : Ø63	–	20 : 20mm, 50 : 50mm

6 Rotation Direction
- R : Rotating in right hand direction
- L : Rotating in left hand direction
- ※ Rotary direction for unclamping (during backward)

7 Rotating Plate (ARM)
- Blank : None
- P : With rotation plate
- ※ Rotating plate is delivered without assembly

8 Auto Switch
- Blank : None (Magnetic equipped cylinder)

Contact point existing auto switch from below
- W4 : W4(P) (Contact point existed)
- W8H : Extremely small auto switch Horizontal (Vertical) type, 2 wire type

Contact point non existing auto switch from below
- W9H(V) : Extremely small auto switch Horiontal (Vertical) type, 2 wire type
- W9H(V)N : Extremely small auto switch horizontal (Vertical) type, 3 wire type
- W2P(L) : Contact point non existing (Available for over Ø40)
- W20H : Extremely small auto switch Horiontal type, (2 color) 2 wire type

9 Number of Auto Switches
- Blank : 2 pcs
- S : 1 pc
- N : N pcs

Specifications

		Type (Tube Internal diameter)							
		012	016	020	025	032	040	050	063
Applied Fluid		Compressed Air							
Rod O.D (mm)		06 | 08		012		016		020	
Rotation Section (mm)		7.5		9.5		15		19	
Straight Section (mm)		10,20						20,50	
Stroke Tolerance		0 ~ +1.4mm							
Rotation Angle &Tolerance		90±10°							
Proof pressure		15Kgf/cm'							
Max. Operating Pressure		9.9 Kgf/cm'							
Min. Operating Pressure		1.0 Kgf/cm'							
Operatinh Method		Double Acting (Standar type)							
Piston Utilizing Speed		50~200mm/sec.							
Cushion Equipped	Rod side	Rubber (Rod End)							
	Head Side	Rubber (Head End) | None							
Ambient Temperature		-5 - 60°C							
Lubrication		No necessary (Non-Lube)							
Pipe Contactiog Hole		M5X0.8				Rc(PT)1/8		Rc(PT)1/4	
Applied Auto Switch		W8*, W9*, W4*(Over Ø32), W2P (Over Ø40)							
Attaching Method		Bolt Penetration of Rod&Head side Cylinder Tube or Tap Attached and flange Attached							

Theroretical Output Sheet

(Unit:kgf)

Bore Size (mm)	Rod (mm) Diameter	Operation Direction	WPA	Applied Pressure (kgf/cm') 2	3	4	5	6	7	8	9	10
12	6	CLAMP	0.8	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8
		UNCLAMP	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11
16	8	CUWIP	1.5	3	4.5	6	7.5	9	10.5	12	135.5	15
		UNCLAMP	2	4	6	8	10	12	14	16	18	20
20	12	CUWIP	2	4	6	8	10	12	14	16	18	20
		UNCLAMP	3	6	9	12	15	18	21	24	27	30
25		CLAMP	3.7	7.4	11.1	14.8	18.5	22.2	25.9	29.6	33.3	37
		UNCLAMP	4.9	9.8	14.7	19.6	24.5	29.4	34.3	39.2	44.1	49
32	16	CUWIP	6	12	18	24	30	36	42	48	54	60
		UNCU\MP	8	16	24	32	40	48	56	64	72	80
40		CUWIP	10.5	21	31.5	42	52.5	63	73.5	84	94.5	105
		UNCLAMP	12.5	25	37.5	50	62.5	75	87.5	100	112.5	125
50	20	CLAMP	16.4	32.8	49.2	65.6	82	98.4	114.8	131.2	147.6	164
		UNCU\MP	19.6	39.2	58.8	78.4	98	117.6	137.2	156.8	176.4	196
63		CUWIP	28	56	84	112	140	168	196	224	252	280
		UNCU\MP	31.1	62.2	93.3	124.4	155.5	186.6	217.7	248.8	279.9	311

Note) Theoretial output = Pressure X Water pressure area(WPA)

Weight Sheet

1. CYLINDER

(Unit:kg)

STROKE (mm)	Bore Size (mm) 12	16	20	25	32	40	50	63
10	0.07	0.1	0.26	0.32	0.5	0.55	-	-
20	0.09	0.12	0.29	0.35	0.54	0.6	1.1	1.44
50			-	-	-	-	1.3	1.7

2.MOUNTINGS

(Unit:kg)

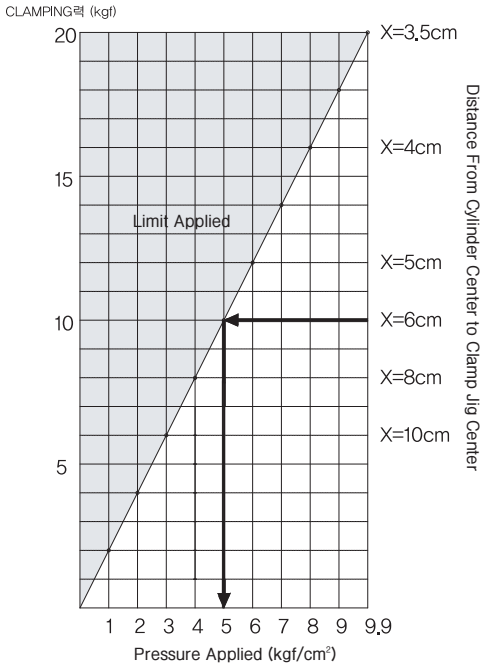
1) SWING PLATE

Item No.	Weight
KP-012	0.01
KP-016	0.03
KP-020	0.05
KP-032	0.14
KP-050	0.19

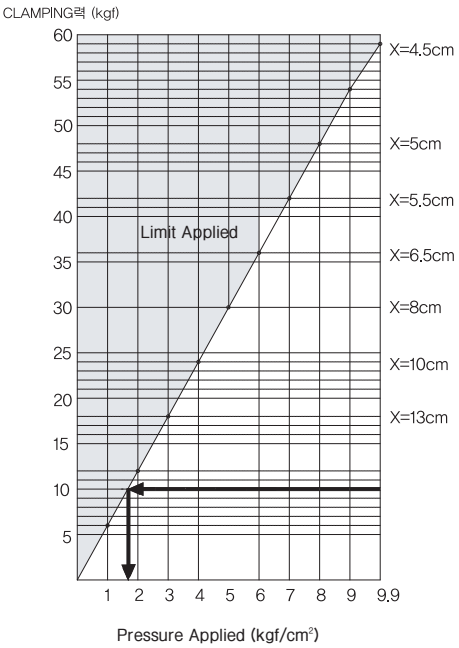
2) FLANGE

Item No.	Weight	Item No.	Weight
QF-012	0.045	QF-016	0.05
QF-020	0.14	QF-040	0.24
QF-025	0.17	QF-050	0.41
QF-032	0.19	QF-063	0.59

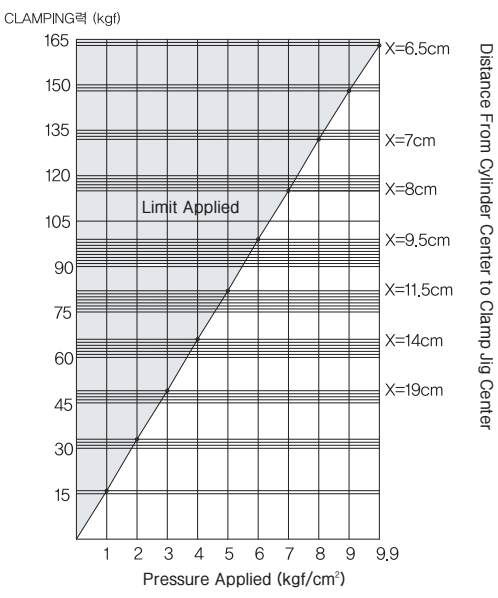
Bending Moment



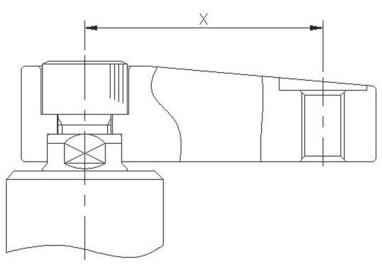
(Ø20, 25)



(Ø32, 40)



(Ø50, 63)



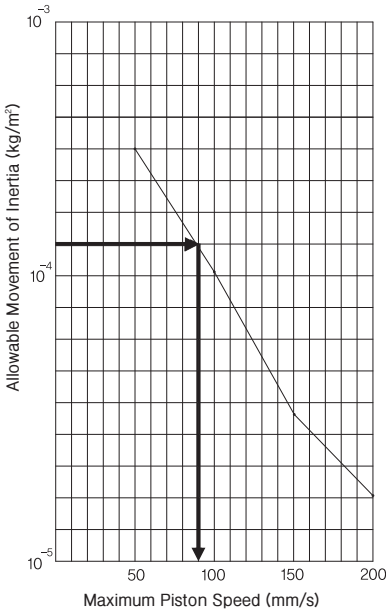
Graph Reading Method

In case designated clamp strength is 10kgf,

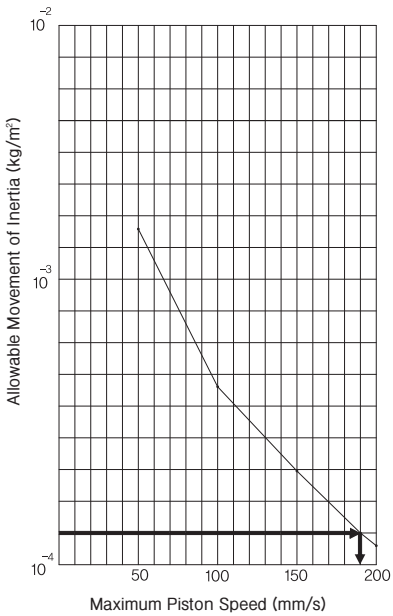
① Ø20, 25 type cases :
Possible to use with over 5kgf/cm² pressure applied and less than 6cm for maximum distance (x) from cylinder center to clamping installing jig center.

② Ø32, 40 type cases :
Possible to use with over 1.5kgf/cm² pressure applied and less than 13cm for maximum distance (x) from cylinder center to clamping installing jig center.

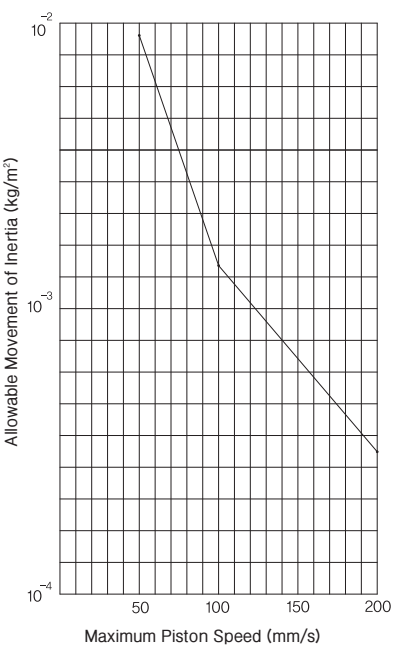
Allowable Moment of Inertia



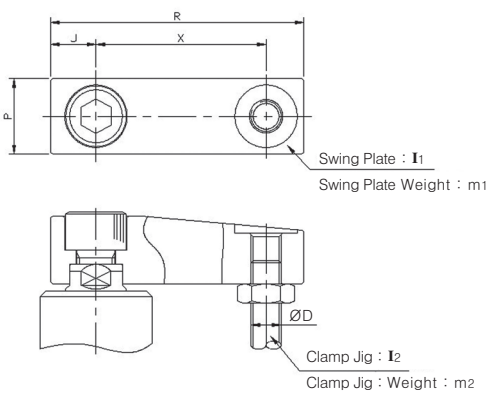
(Ø20, 25)



(Ø32, 40)



(Ø50, 63)



$I_1 : m_1 \cdot \frac{R^2+P^2}{12} + m_1 \cdot [\frac{R}{2} - J]^2$

$I_2 : m_2 \cdot \frac{D^2}{8} + m_2 \cdot X^2$

SWING PLATE : I_1+CLAMP JIG : I_2= I (TOTAL Moment of Inetia)

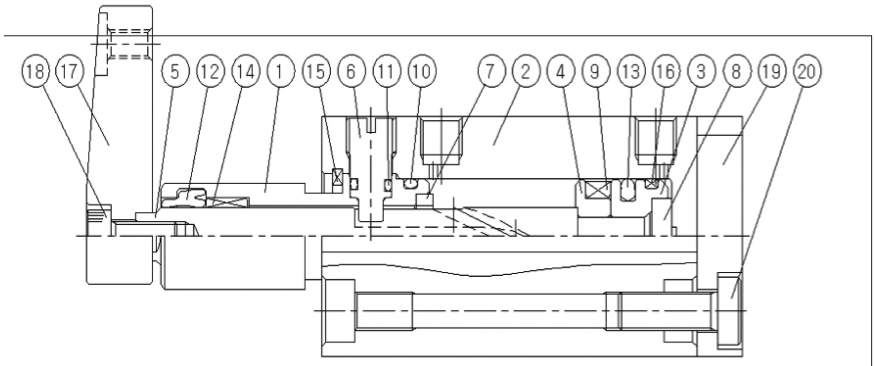
Graph Reading Method

In case total moment of inertia is calculated to $2x10^{-4}kg \cdot m^2$, maximum cylinder speed is,

① Less than 90mm/s for NSK*20 and 25 type,
② Less than 190mm/s for NSK*32 and 40 type,
③ Available to use within all range regardless of maximum piston speed (200m/s) for NSK*50 and 63 types.

Structural Drawing / Component List

Ø12~Ø16



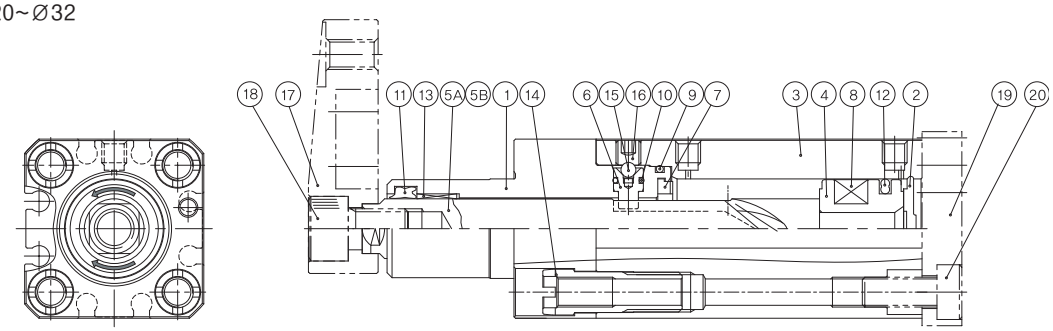
Component Name

No.	Component Name	Material	Remark
1	ROD COVER	Aluminum Alloy	
2	CYLINDER TUBE	Aluminum Alloy	
3	PISTON	Aluminum Alloy	
4	PISTON-B	Aluminum Alloy	
5	PISTON ROD	High Carbon Chrome Bearing Steel	
6	GUIDE PIN		
7	BUMPER-A	Urethane	
8	BUMPER-B	Urethane	
9	MAGNET	NBR+Bagerrite	
10	TUBE GASKET	NBR	

No.	Component Name	Material	Remark
11	GUIDE PIN GASKET	NBR	
12	ROD PACKING	NBR	
13	PISTON PACKING	NBR	
14	GUIDE BUSH	Cooper Alloy	
15	SNAP RING	Carbon Steel	
16	WEAR RING	Resin	
17	SWING PLATE	Rolled Steel Material	N(D)SK**-**P
18	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	N(D)SK**-**P
19	FLANGE	Rolled Steel Material	N(D)SKG**-**
20	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	N(D)SKG**-**

Structural Drawing/Component List

Ø20~Ø32

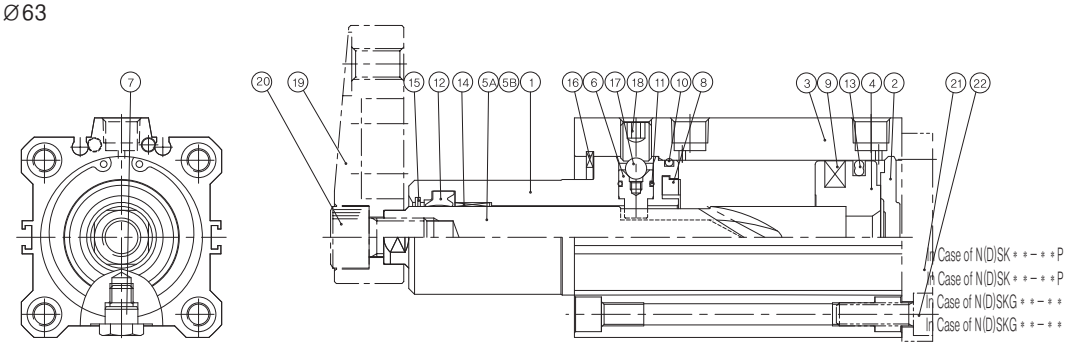


Component Name

NO	Component Name	Material	Remark
❶	Rod Cover	Aluminum Alloy	
❷	End Plate	Aluminum Alloy	
❸	Cylinder Tube	Aluminum Alloy	
❹	Piston	Aluminum Alloy	
❺	Piston Rod	High Carbon Chrome Bearing Steel	
❻	Guide Pin	High Carbon Chrome Bearing Steel	
❼	Bumper	Urethane	
❽	Magnet	NBR+Bagerrite	
❾	Tube Gasket	NBR	
❿	Guide Pin Gasket	NBR	

NO	Component Name	Material	Remark
⓫	Rod Packing	NBR	
⓬	Piston Packing	NBR	
⓭	Guide Bush	Cooper Alloy	
⓮	Socket Bolt	Carbon Steel	
⓯	Steel Ball	High Carbon Chrome Bearing Steel	
⓰	Set Screw	Chrome Molybdenum Steel	
⓱	Swing Plate	Rolled Steel Material	In Case of N(D)SK＊＊-＊＊P
⓲	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	In Case of N(D)SK＊＊-＊＊P
⓳	Flange	Rolled Steel Material	In Case of N(D)SKG＊＊-＊＊
⓴	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	In Case of N(D)SKG＊＊-＊＊

Ø40~Ø63



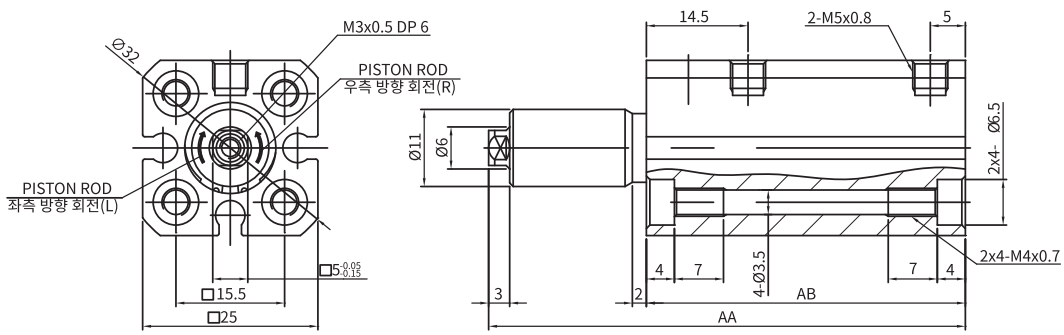
Component Name

NO	Component Name	Material	Remark
❶	Rod Cover	Aluminum Alloy	
❷	End Plate	Aluminum Alloy	
❸	Cylinder Tube	Aluminum Alloy	
❹	Piston-A	Aluminum Alloy	
❺	Piston Rod	High Carbon Chrome Bearing Steel	
❻	Guide Pin	Bearing Steel	
❼	Guide Bolt	Rolled Steel Material	
❽	Bumper	Urethane	
❾	Magnet	NBR+Baferrite	
❿	Tube Gasket	NBR	
⓫	Guide Pin Gasket	NBR	

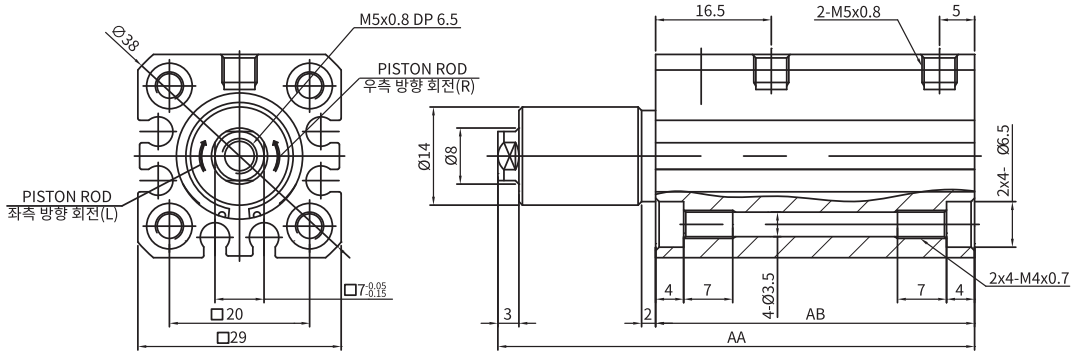
NO	Component Name	Material	Remark
⓬	Rod Packing	NBR	
⓭	Piston Packing	NBR	
⓮	Guide Bush	Cooper Alloy	
⓯	Metal Screper	Cooper Alloy	
⓰	Snap Ring	Carbon Steel	
⓱	Steel Ball	High Carbon Chrome Bearing Steel	
⓲	Set Scrrew	Chrome Molybdenum Steel	
⓳	Swing Plate	Rolled Steel Material	In Case of N(D)SK＊＊-＊＊P
⓴	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	In Case of N(D)SK＊＊-＊＊P
㉑	Flange	Rolled Steel Material	In Case of N(D)SKG＊＊-＊＊
㉒	6 Hexagonal Hole Bolt	Chrome Molybdenum Steel	In Case of N(D)SKG＊＊-＊＊

External Shape Dimension Drawing

Ø12



Ø16

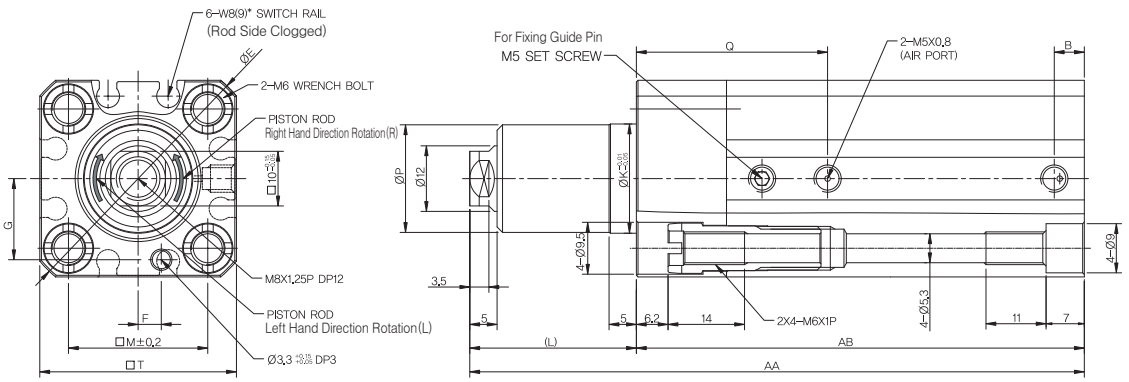


기종	AA		AB	
	10st.	20st.	10st.	20st.
Ø12	68	88	45.5	55.5
Ø16	68	88	45.5	55.5

External Shape Dimension Drawing

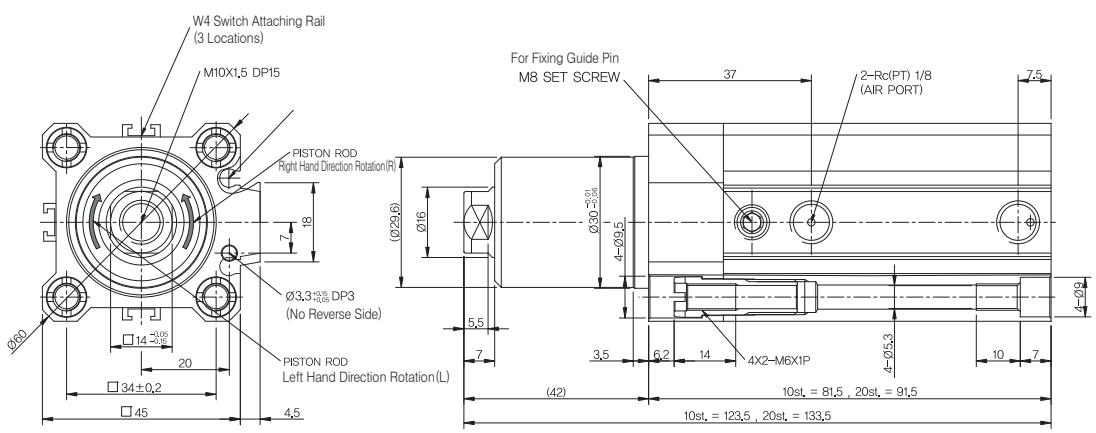
(Unit :mm)

Ø20~Ø25



Type	AA		AB		L	T	M	E	K	F	G	Q	B	P
	10st.	20st.	10st.	20st.										
Ø20	102.5	112.5	72	82	30.5	36	25.5	47	20	4.2	14.8	35	5.5	19.7
Ø25	103.5	113.5	73	83	30.5	40	28	52	23	5.7	17	32	5.6	22.5

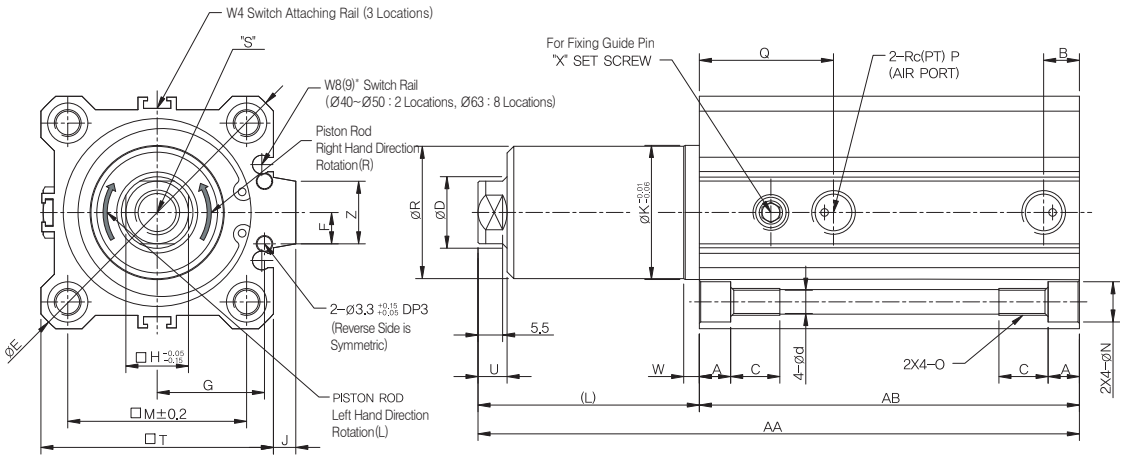
Ø32



External Shape Dimension Drawing

(Unit :mm)

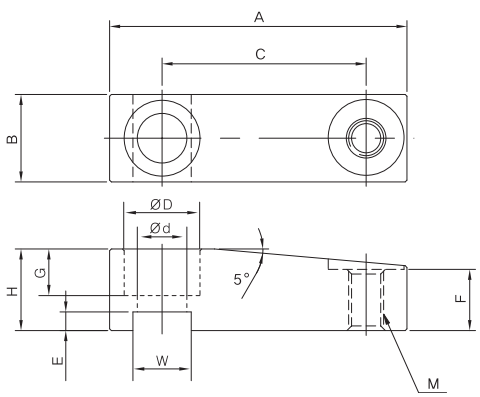
Ø40~Ø63



Type	AA			AB			L	T	M	E	K	F	G	Q	B	R	J	H	N
	10st.	20st.	50st.	10st.	20st.	50st.													
Ø40	124.5	134.5	–	75	85	–	49.5	52	40	69	30	7	24	30	8	29.6	5	14	9
Ø50	–	152	212	–	96.5	126.5	–	64	50	87	37	8	30	34	10.5	35.5	7	17	11
Ø63	–	155	215	–	100	130	–	77	60	103	48	9	35	35	10.5	47.4	7	17	14

Type	A	C	d	D	Z	P	O	X	U	W	S
Ø40	7	11	5.3	16	14	1/8	M6×1.0	M8	6.5	3.5	M10×1.5 DP:15
Ø50	8	14	6.6	20	22	1/4	M8×1.25	M8	7.5	4	M12×1.75 DP:16
Ø63	10.5	18	8.5	20	22	1/4	M10×1.5	M10	7.5	4.5	M12×1.75 DP:16

SWING PLATE



※ Surface Treatment : Nickel Chrome Plated

Item Number	Type	A	B	C	Ød	ØD	E	F	G	H	M	W
KP-20	Ø20, Ø25	51	15	35	Ø8.5	Ø13.5	3.2	10.5	8	14	M6×1 THRU	10
KP-32	Ø32, Ø40	67	20	45	Ø10.5	Ø16.5	5.2	13.5	9	18	M8×1.25 THRU	14
KP-50	Ø50, Ø63	89	22	65	Ø12.5	Ø19	5.2	15.5	11	22	M10×1.5 THRU	17