

# NGQ Air Cushion Series

Guide compact cylinder air cushion type / Bore size : Ø20, Ø32, Ø40, Ø50, Ø63

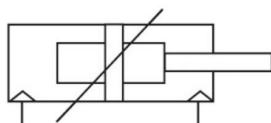
Actuator  
Cylinder

NGQ Air cushion Series



- Exclusive grease use, dust generation is minimized during operation
- High precision and rotation prevention
- Applications of various Auto switches
- Side port mounted by default
- Expanded the adjustable cushion range
- Minimized cushion bouncing with an ideal air passage design

Symbol



## How to order

NGQ M 20 50 A — — — — —

1 2 3 5 5 6 7 8 9 10 11

① NGQ=New guide compact cylinder

② Bearing type  
M : Slide bearing  
L : Ball bushing

③ Bore size

Type bore size	20	25	32	40	50	63
Stroke(mm)	20	25	32	40	50	63

④ Cylinder stroke(mm)

Type	Bore size	Stroke(mm)
NGQM	Ø20, Ø25, Ø32,	25, 50, 75, 100, 125,
NGQL	Ø40, Ø50, Ø63	150, 175, 200, 250

⑤ A : Air cushion type

⑥ Port type

Blank	Blank EU type	US type
Rc	G	NPT

⑦ Attachment specification

Blank : No side-attachment hole  
H : Side-attachment hole

⑧ Option

Blank : Standard (For L type with bore size  
Ø12 ~ Ø40, copper-free is the basic)  
XC16 : Copper-free (Only available for L type)

⑨ Auto switch

Blank : None (Built-in magnet cylinder)  
W4 : Reed switch  
W2P : Magnetic field resistant switch  
W8V : Micro reed switch (Vertical)  
W8H : Micro reed switch (Horizontal)  
W9V : Micro solid state switch (Vertical)  
W9H : Micro solid state switch (Horizontal)  
※ Refer to page 200 for additional information including  
AC200V.

⑩ Lead wire length

Blank : 0.5m  
L : 3m

⑪ Number of switches

Blank : 2 pcs  
S : 1 pc

## Specifications

Fluid	Pressed air
Operation	Double-acting
Proof pressure	1.5MPa(15kgf/cm <sup>2</sup> )
Operating pressure range	Max. operating pressure 1.0MPa(10.2kgf/cm <sup>2</sup> ) Min. operating pressure 0.1MPa(1.0kgf/cm <sup>2</sup> )
Ambient & fluid temperature	-10°C ~ +60°C (Anti-freezing)
Lubrication	Unnecessary (Non-lube)
Cushion	Air cushion on both ends
Piping	2 directions (Top-ported, Side-ported)
Mounting type	Top mounting, Bottom mounting, Side mounting (optional), T-slot mounting, Rear mounting
Auto switch	Micro auto switch (W8*, W9*), W4 Magnetic field resistant auto switch (W2P) 3 types available
Piston speed	50 ~ 500mm/s
Stroke length tolerance	+1.5 0 mm

## Series NGQ

### Standard Specification

Item		Specification	
Fluid		Compressed Air	
How to Operate		Double Acting	
Proof Pressure		1.5 Mpa (15kgf/cm <sup>2</sup> )	
Pressure Range Applied	Max. Pressure	1.0 Mpa (9.9kgf/cm <sup>2</sup> )	
	Min. Pressure		
		Ø20 ~ Ø 63	0.1 Mpa (1.0kgf/cm <sup>2</sup> )
Surrounding and Used Fluid Temperature		-10℃ ~ +60℃	
Lubrication		Non Lubrication	
Cushion		Both Side Air Cushion (Basic)	
Piping		2 Direction Piping (Top and Bottom)	
Cylinder Attachment Type		Through Type Attachment (Top and Bottom), Side Attachment (Option)	
		T-Slot Attachment, Back Attachment	
AUTO S/W		Ultra-tiny AUTO S/W (W8 *, W9 *), W4	
		Able to Attach 3 Sets of Strong Magnetic Field-Resistant AUTO S/W (W2P)	
Applied Piston Speed		50 ~ 500 mm/S	
Stroke Tolerance		+1.5 0 mm	

### Theory Output Table

(Unit : kgf)



Bore Size (mm)	ROD Diameter (mm)	Operation Direction	Water Pressure Area (cm <sup>2</sup> )	Pressure Applied(kgf/cm <sup>2</sup> )								
				2	3	4	5	6	7	8	9	10
20	10	OUT	3.1	6.3	9.4	12.6	15.7	18.8	22	25.1	28.3	31.4
		IN	2.4	4.7	7.1	9.4	11.8	14.1	16.5	18.8	21.2	23.6
25	12	OUT	4.9	9.8	14.7	19.6	24.5	29.4	34.3	39.3	44.2	49.1
		IN	3.8	7.6	11.3	15.1	18.9	22.7	26.4	30.2	34	37.8
32	16	OUT	8	16.1	24.1	32.2	40.2	48.2	56.3	64.3	72.4	80.4
		IN	6	12.1	18.1	24.1	30.1	36.2	42.2	48.2	54.3	60.3
40	16	OUT	12.6	25.1	37.7	50.2	62.8	75.4	87.9	100.5	113	125.6
		IN	10.6	21.1	31.7	42.2	52.8	63.3	73.9	84.4	95	105.5
50	20	OUT	19.6	39.3	58.9	78.5	98.1	117.8	137.4	157	176.6	196.3
		IN	16.5	33	49.5	65.9	82.4	98.9	115.4	131.9	148.4	164.9
63	20	OUT	31.2	62.3	93.5	124.6	155.8	186.9	218.1	249.3	280.4	311.6
		IN	28	56	84.1	112.1	140.1	168.1	196.1	224.1	252.2	280.2

Note) Theory output(kgf) = Pressure (kgf/cm<sup>2</sup>) X Piston water pressure area (cm<sup>2</sup>)      1kgf ≒ 9.8 N, 1kgf/cm<sup>2</sup>≒0.098Mpa

## Series NGQ

Weight Table (product weight)

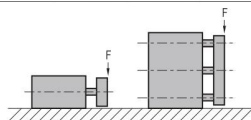
(Unit : kg)

Bore Size	Type	Cylinder Stroke (mm)													
		10	20	25	30	40	50	75	100	125	150	175	200	250	300
Ø 20	M TYPE	—	0.7	—	0.8	0.8	0.9	1.2	1.4	1.6	1.8	2.0	2.2	2.7	3.1
Ø 25		—	1.0	—	1.1	1.2	1.3	1.7	1.9	2.2	2.5	2.8	3.0	3.6	4.1
Ø 32		—	—	1.7	—	—	2.2	2.5	2.8	3.2	3.6	4.0	4.3	5.3	6.0
Ø 40		—	—	1.8	—	—	2.5	2.8	3.3	3.8	4.2	4.8	5.2	6.4	6.9
Ø 50		—	—	3.1	—	—	3.8	4.5	5.2	5.8	6.5	7.3	7.9	8.8	9.4
Ø 63		—	—	3.7	—	—	4.8	5.4	6.2	6.8	7.6	8.4	9.1	10.1	10.8
Ø 20	L TYPE	—	0.7	—	0.8	0.9	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.5	2.9
Ø 25		—	1.0	—	1.1	1.3	1.3	1.6	1.8	2.1	2.3	2.6	2.8	3.3	3.7
Ø 32		—	—	1.5	—	—	2.0	2.3	2.6	2.9	3.3	3.6	3.9	4.6	5.2
Ø 40		—	—	1.7	—	—	2.2	2.7	3.1	3.5	3.9	4.4	4.8	5.6	6.0
Ø 50		—	—	2.8	—	—	3.5	4.2	4.8	5.4	6.0	6.7	7.3	7.8	10.2
Ø 63		—	—	3.5	—	—	4.5	5.1	5.8	6.5	7.1	7.8	8.5	9.2	9.8

Allowed Load

(Unit : N)

Bore Size	Type	Cylinder Stroke (mm)													
		10	20	25	30	40	50	75	100	125	150	175	200	250	300
Ø 20	M	—	52	—	44	43	38	67	58	51	45	40	36	28	19
	L	—	33	—	88	96	87	77	54	35	24	17	13	8	5
Ø 25	M	—	69	—	58	57	50	90	77	67	60	60	55	55	47
	L	—	49	—	39	102	92	91	77	79	70	52	40	25	17
Ø 32	M	—	—	146	—	—	160	143	122	115	102	117	107	92	80
	L	—	—	73	—	—	160	144	123	145	129	116	89	57	39
Ø 40	M	—	—	148	—	—	162	145	124	116	103	119	109	93	81
	L	—	—	73	—	—	160	144	123	144	129	116	89	56	38
Ø 50	M	—	—	238	—	—	236	221	192	179	160	176	161	138	121
	L	—	—	78	—	—	215	194	167	192	172	198	164	107	73
Ø 63	M	—	—	237	—	—	235	220	190	177	158	174	159	136	118
	L	—	—	74	—	—	215	194	165	191	171	198	160	102	69

1kgf  $\approx$  9.8 N, 1kgf/cm<sup>2</sup>  $\approx$  0.098Mpa

## Series NGQ

### Standard Stroke

Classification	Cylinder Stroke (mm)													
	10	20	25	30	40	50	75	100	125	150	175	200	250	300
Ø 20	—	●	—	●	●	●	●	●	●	●	●	●	●	●
Ø 25	—	●	—	●	●	●	●	●	●	●	●	●	●	●
Ø 32	—	—	●	—	—	●	●	●	●	●	●	●	●	●
Ø 40	—	—	●	—	—	●	●	●	●	●	●	●	●	●
Ø 50	—	—	●	—	—	●	●	●	●	●	●	●	●	●
Ø 63	—	—	●	—	—	●	●	●	●	●	●	●	●	●

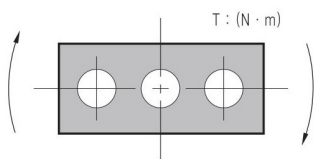
Note) In the case of middle stroke, able to manufacture it in 5 stroke units by mounting spacer (including "—" mark part)

### Allowed Rotation Torque (T)

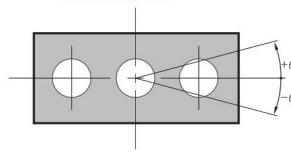
(Unit : N · m)

Bore Size	Type	Cylinder Stroke (mm)													
		10	20	25	30	40	50	75	100	125	150	175	200	250	300
Ø 20	M	—	1.4	—	1.2	1.2	1.1	1.9	1.6	1.4	1.3	1.1	1	0.8	0.5
	L	—	0.9	—	2.5	2.7	2.4	2.2	1.5	1	0.7	0.5	0.4	0.2	0.1
Ø 25	M	—	2.3	—	1.9	1.9	1.7	2.6	2.5	2.2	2	2	1.8	1.8	1.6
	L	—	1.6	—	1.3	3.4	3.1	3	2.6	2.6	2.3	1.7	1.3	0.8	0.5
Ø 32	M	—	—	5.9	—	—	6.4	5.7	4.9	4.6	4.1	4.7	4.3	3.7	3.2
	L	—	—	2.9	—	—	6.4	5.8	4.9	5.8	5.2	4.7	3.6	2.3	1.5
Ø 40	M	—	—	6.5	—	—	7.1	6.3	5.4	5.1	4.5	5.2	4.7	4	3.5
	L	—	—	3.2	—	—	6.9	6.3	5.3	6.3	5.6	5	3.9	2.5	1.7
Ø 50	M	—	—	13.1	—	—	13	12.2	10.5	9.8	8.8	9.7	8.9	7.6	6.6
	L	—	—	4.3	—	—	11.8	10.7	9.2	10.6	9.5	10.9	9	5.9	4
Ø 63	M	—	—	14.7	—	—	14.6	13.7	11.8	11	9.8	10.8	9.9	8.4	7.3
	L	—	—	4.6	—	—	13.3	12	10.3	11.9	10.6	12.3	9.9	6.3	4.3

1kgf  $\approx$  9.8 N, 1kgf/cm<sup>2</sup>  $\approx$  0.098Mpa



Non-load: It is a theoretical rotational angle by guide rod and bearing's clearance in reverse movement



### Maximum Rotation Angle

Bore Size	Maximum Rotation Angle( ° )	
	NGQM	NGQL
Ø20, 25	$\pm 0.09^\circ$	$\pm 0.06^\circ$
Ø32, 40	$\pm 0.08^\circ$	$\pm 0.06^\circ$
Ø50, 63	$\pm 0.06^\circ$	$\pm 0.05^\circ$

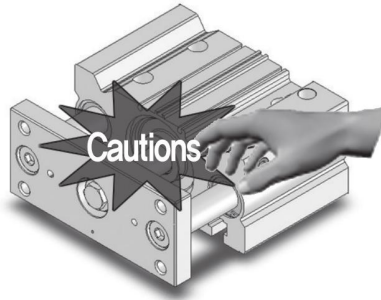


## Series NGQ

## Cautions

**Please do not insert your hands or fingers between plate and body.**

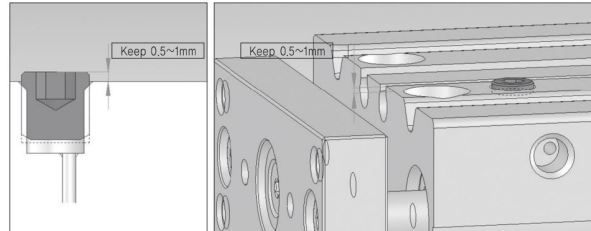
- Please be careful that your hands or fingers are not stuck between cylinder body and plate in air pressure.



## In using side port

- When you use side port by attaching plug on top port hole, in the case of cylinder internal diameter of  $\phi 12, 16$ , please assemble it in order to keep 0.5~1mm with top as below figure.

※Narrowed air orifice hole's diameter might cause cylinder operation problems.



## Attachment

You can attach it by four methods such as back attachment, side attachment, penetration top attachment, and penetration bottom attachment.

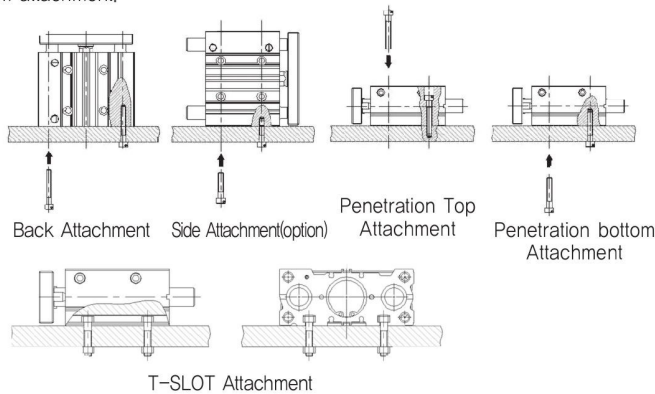


Table 1. T-SLOT Bolts

Bore Size	Applied Bolt	Bore Size	Applied Bolt
$\phi 20$	M5	$\phi 63$	M10
$\phi 25$	M5	$\phi 80$	M12
$\phi 32$	M6	$\phi 100$	M14

(Note) Used bolt is based on hexagonal (rectangular) bolt.

## ① Caution in cylinder back attachment

In cylinder back attachment, please process entrance hole in order guide rod's end not to interfere attachment surface (bracket). But in back attachment, as for bolt depth, 1.5d is recommended (Refer to the Table 2. Back attachment area size and bolt size)

## ② In treating cylinder, please be careful of piston rod or guide rod's damage by impact or strange materials.

- Rod and cylinder damage may cause leakage and malfunction.

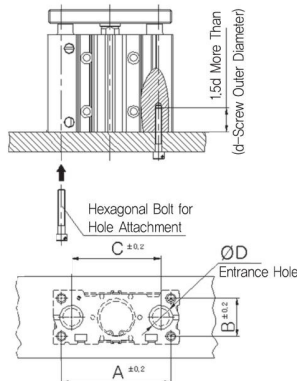


Table 2. Back Attachment Part's Size and Bolt Size

Bore Size	A (mm)	B (mm)	C (mm)	$\phi D$ (mm)		Hexagonal wrench bolt for attachment
				NGQM	NGQL	
$\phi 20$	72	24	56	14	12	M5 X 0.8
$\phi 25$	82	30	66	18	15	M5 X 0.8
$\phi 32$	98	34	80	22	18	M8 X 1.25
$\phi 40$	106	40	87	22	18	M8 X 1.25
$\phi 50$	130	46	110	27	22	M10 X 1.5
$\phi 63$	142	58	124	27	22	M10 X 1.5

ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

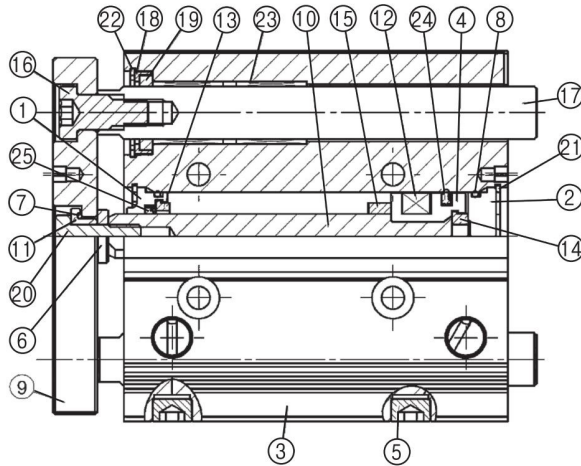
NLCD

NLCS

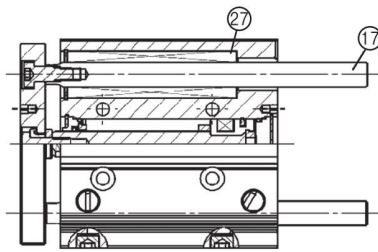
## Series NGQ

### Structural Drawing/Part List, Packing List

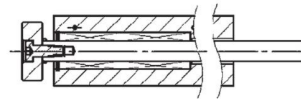
#### ◎ NGQM 20~25



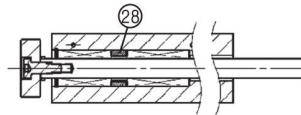
#### ◎ NGQL 20~25



\* Ø20 : More than 20ST  
\* Ø25 : More than 30ST



\* Ø20 : Between 20ST and 30ST



\* Ø 20, 25 : More than 30ST

#### Part List

No.	Part Name	Material	No.	Part Name	Material	No.	Part Name	Material
1	ROD COVER	Aluminum Alloy	11	RETAINER	Carbon Steel	19	FELT	Wool
2	HEAD COVER	Aluminum Alloy	12	MAGNET	NBR	20	PLATE ATTACHMENT BOLT	CarbonTool Steel
3	CYLINDER TUBE	Aluminum Alloy	13	BUMPER-A	Urethane	21	SNAP RING-A	CarbonTool Steel
4	PISTON	Aluminum Alloy	14	BUMPER-B	Urethane	22	SNAP RING-B	CarbonTool Steel
5	PORT PLUG	CarbonTool Steel	15	SPACER	Aluminum Alloy (Non-standard ST)	23	SLIDE BEARING	Copper Alloy
6	RETAINER WASHER	Stainless Steel	16	GUIDE ROD BOLT	CarbonTool Steel	24	PISTON PACKING	NBR
7	O-RING	NBR	17	GUIDE ROD	NGQM Carbon Steel	25	ROD PACKING	NBR
8	GASKET	NBR	18	HOLDER	Carbon Steel	26	SCRAPER	NBR
9	PLATE	Carbon Steel				27	BALL BEARING	—
10	PISTON ROD	Stainless Steel				28	GUIDE SPACER	Aluminum Alloy

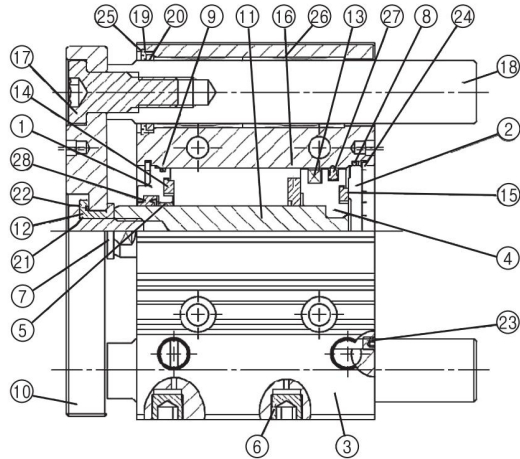
#### Packing List/Replacement Part

NO.	Part Name	Part Number	
		Ø20	Ø25
8	GASKET	C-18	C-23
24	PISTON PACKING	TPSA-20	TPSA-25
25	ROD PACKING	DYR-10SK-K	DYR-12
SEAL KIT		NGQ20-SK	NGQ25-SK

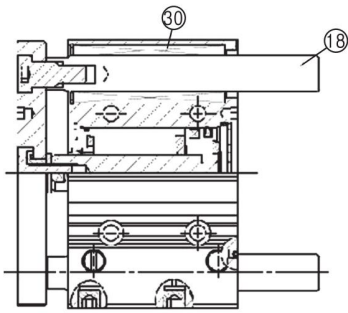
Series NGQ

Structural Drawing/Part List, Packing List

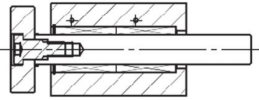
◎ NGQM 32~63



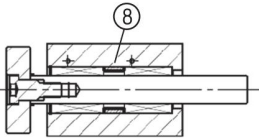
◎ NGQL 32~63



\* Less than 25ST



\* Between 25ST and 50ST



\* More than 50ST

Part List

No.	Part Name	Material	No.	Part Name	Material	No.	Part Name	Material
1	ROD COVER	Aluminum Alloy	11	PISTON ROD	Carbon Steel	20	FELT	Wool
2	HEAD COVER	Aluminum Alloy	12	RETAINER	Carbon Steel	21	PLATE ATTACHMENT BOLT	CarbonTool Steel
3	CYLINDER TUBE	Aluminum Alloy	13	MAGNET	NBR	22	O-RING	NBR
4	PISTON	Aluminum Alloy	14	BUMPER-A	Urethane	23	ACEPHALIA BOLT	CarbonTool Steel
5	BUSH	Copper Alloy	15	BUMPER-B	Urethane	24	SNAP RING-A	CarbonTool Steel
6	PORT PLUG	CarbonTool Steel	16	SPACER	Aluminum Alloy (Non-standard ST)	25	SNAP RING-B	CarbonTool Steel
7	RETAINER WASHER	Carbon Steel	17	GUIDE ROD BOLT	CarbonTool Steel	26	SLIDE BUSH	Copper Alloy
8	HEAD COVER GASKET	NBR	18	GUIDE ROD	Carbon Steel	27	PISTON PACKING	NBR
9	GASKET	NBR	19	HOLDER	Carbon Steel	28	ROD PACKING	NBR
10	PLATE	Carbon Steel				30	BALL BEARING	—
						31	GUIDE SPACER	Aluminum Alloy

Packing List/Replacement Part

NO.	Part Name	Part Number			
		Ø32	Ø40	Ø50	Ø63
8	HEAD COVER GASKET	TGQM032-18-1586	TGQM040-18-1587	TGQM050-18-1588	TGQM063-18-1589
9	GASKET	C-29	C-36	C-46	C-60
27	PISTON PACKING	TPSA-32	TPSA-40	TPSA-50	TPSA-63
28	ROD PACKING	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z
	SEAL KIT	NGQ32-SK	NGQ40-SK	NGQ50-SK	NGQ63-SK

\* As for Seal KIT, 8, 9, 27, and 28 replacement parts are comprised in one type.

ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

AST

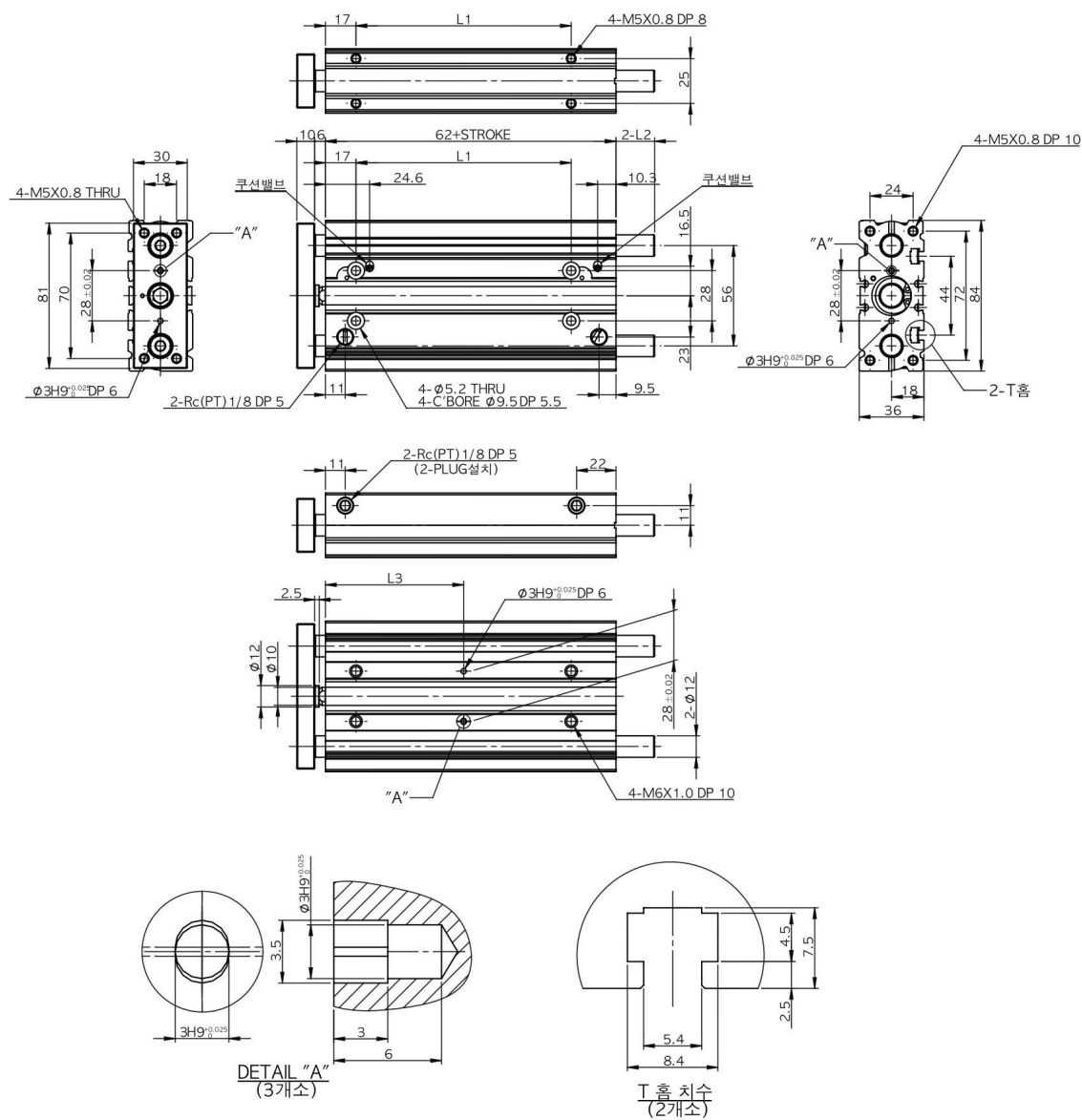
ASTH

NLCD

NLCS

# NGQ Air cushion Series

Drawing/NGQM Ø20 Air cushion Type

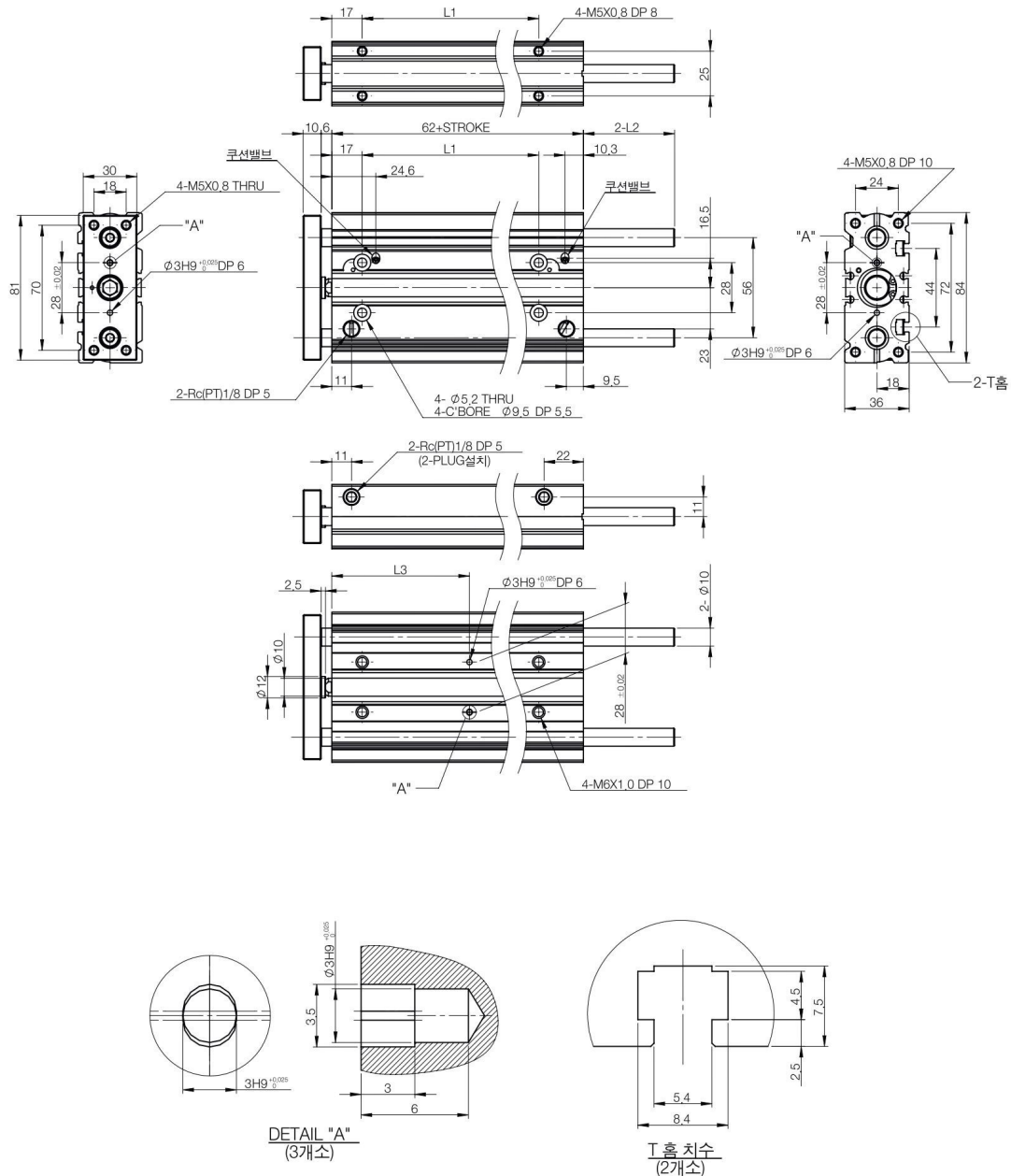


NGQM Dimensions (Ø20)

STROKE	25	50	75	100	125	150	175	200	250
L1	44	44	44	120	120	120	120	200	200
L2	0	0	21.5	21.5	21.5	21.5	21.5	21.5	22
L3	39	39	39	77	77	77	77	117	117

# NGQ Air cushion Series

## Drawing/NGQL Ø20 Aircushion Type



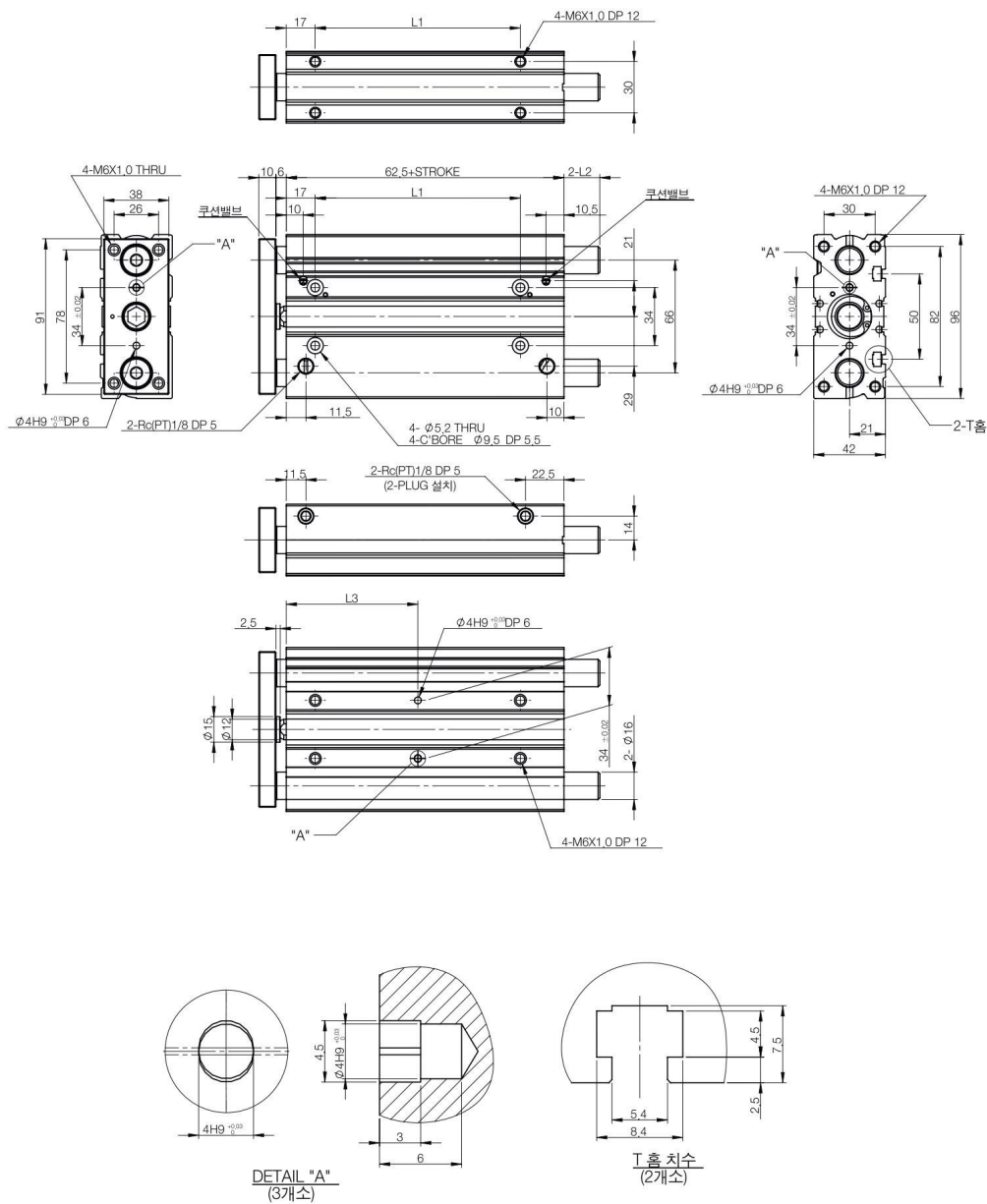
### NGQL Dimensions(Ø20)

STROKE	25	50	75	100	125	150	175	200	250
L1	44	44	44	120	120	120	120	200	200
L2	11	16	16	26	26	36	36	36	51
L3	39	39	39	77	77	77	77	117	117



# NGQ Air cushion Series

## Drawing/NGQM Ø25 Air cushion Type

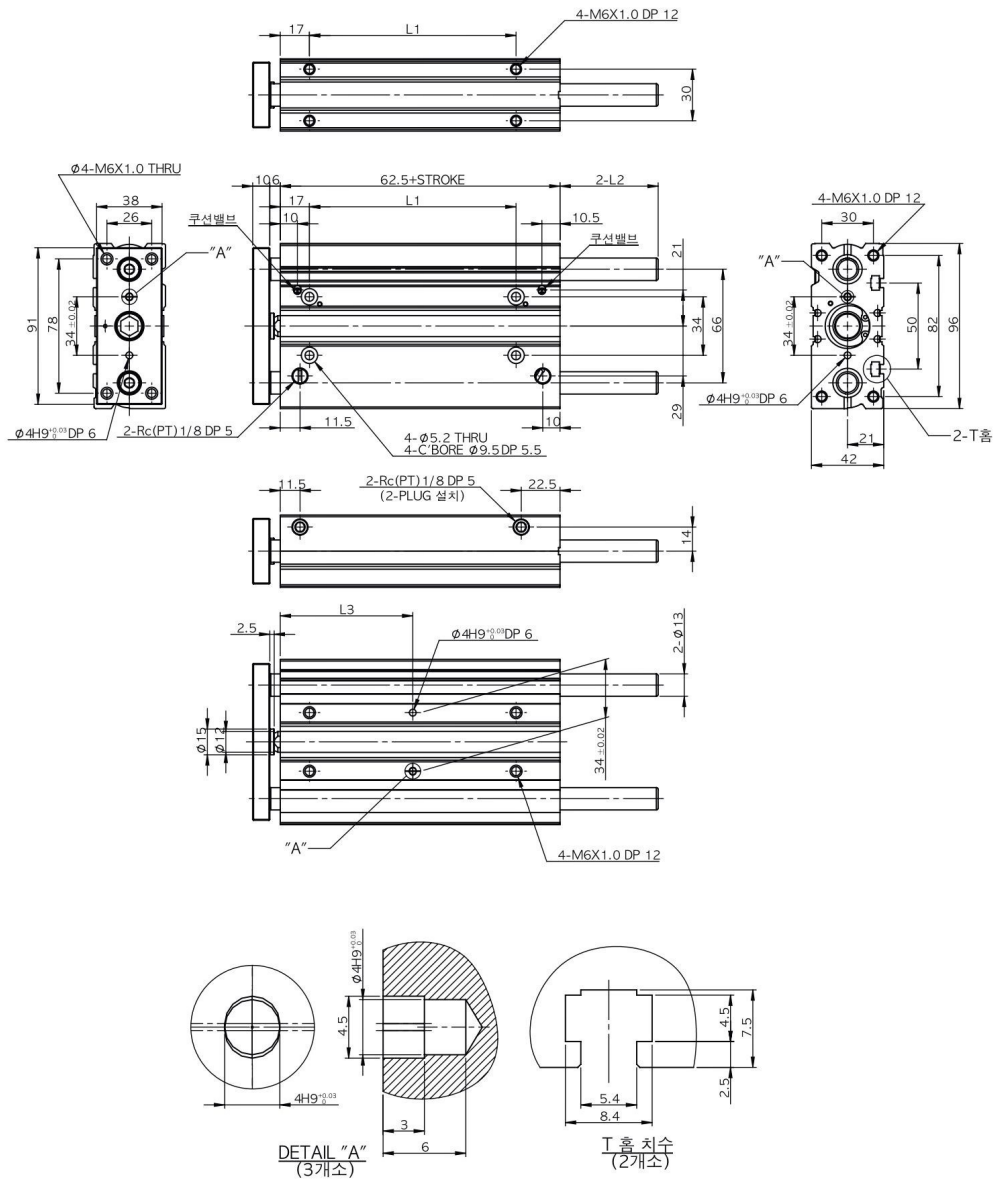


NGQM Dimensions(Ø25)

STROKE	25	50	75	100	125	150	175	200	250
L1	44	44	44	120	120	120	120	200	200
L2	0	0	21	21	21	21	31	31	46.5
L3	39	39	39	77	77	77	77	117	117

# NGQ Air cushion Series

## Drawing/NGQL Ø25 Air cushion Type

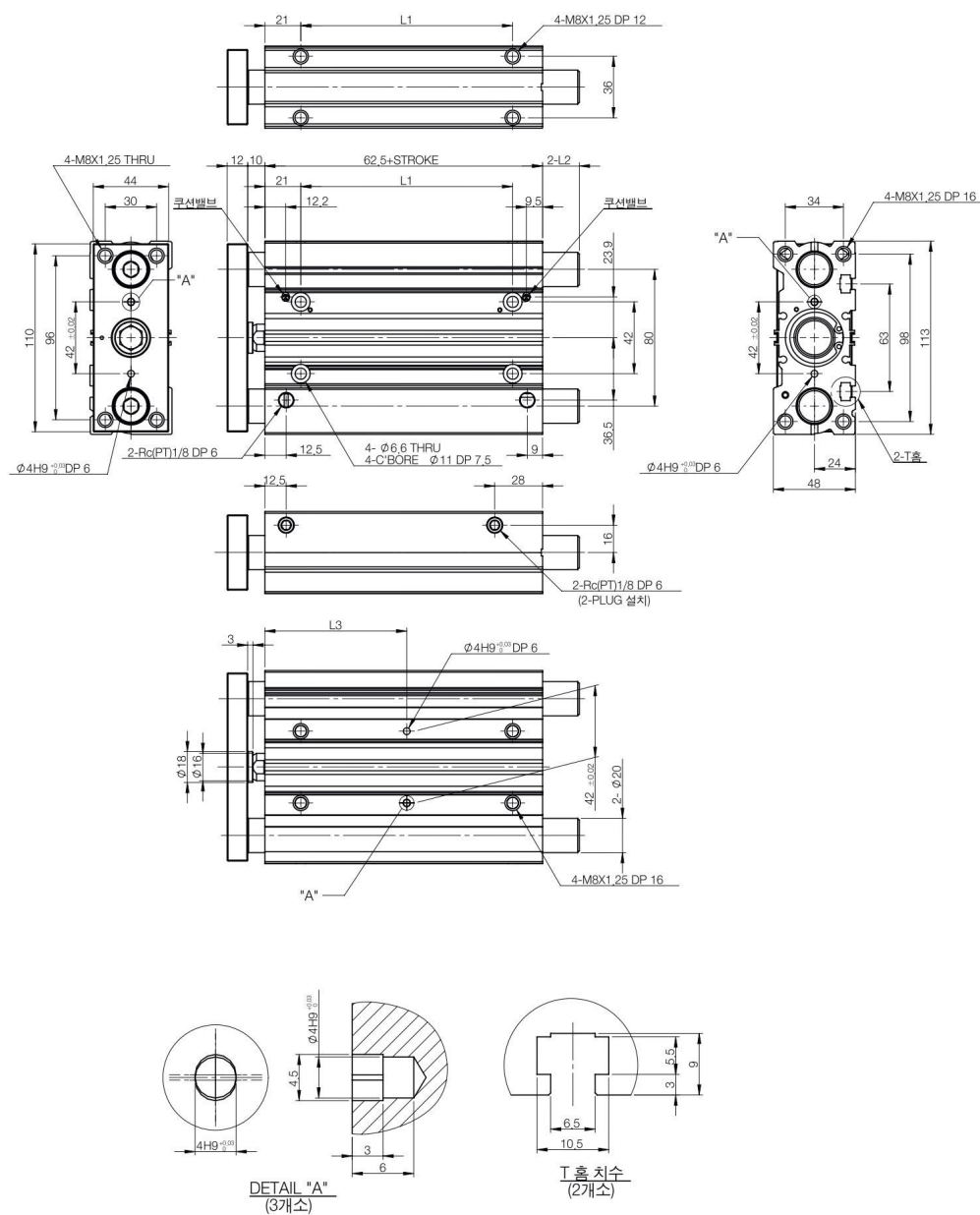


NGQL Dimensions(Ø25)

STROKE	25	50	75	100	125	150	175	200	250
L1	44	44	44	120	120	120	120	200	200
L2	12	22	22	32	32	47	47	47	62
L3	39	39	39	77	77	77	77	117	117

# NGQ Air cushion Series

Drawing/NGQM Ø32 Air cushion Type

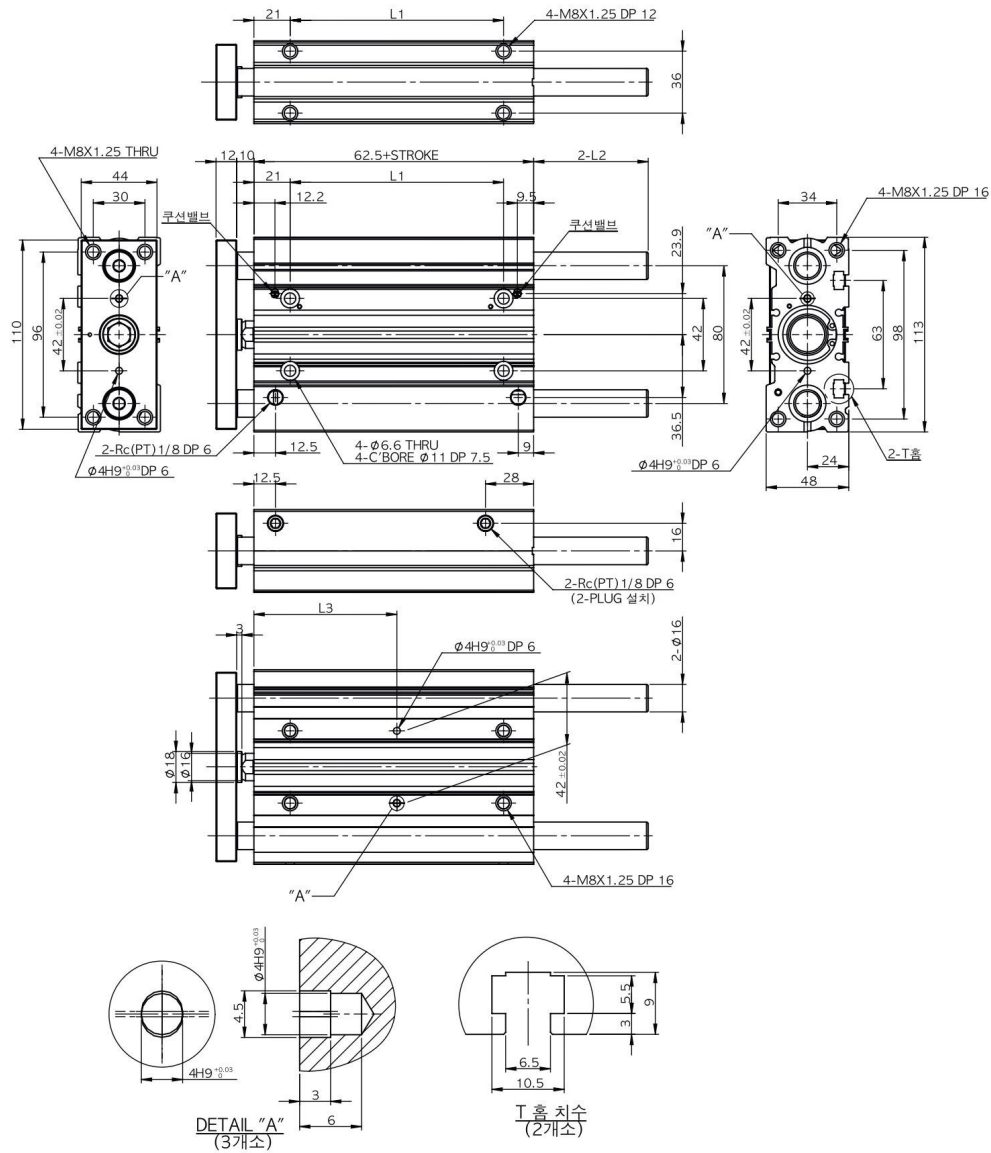


NGQM Dimensions(Ø32)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	0	16.5	21.5	21.5	26.5	26.5	46.5	46.5	46.5
L3	45	45	45	83	83	83	83	121	121

# NGQ Air cushion Series

## Drawing/NGQL Ø32 Air cushion Type

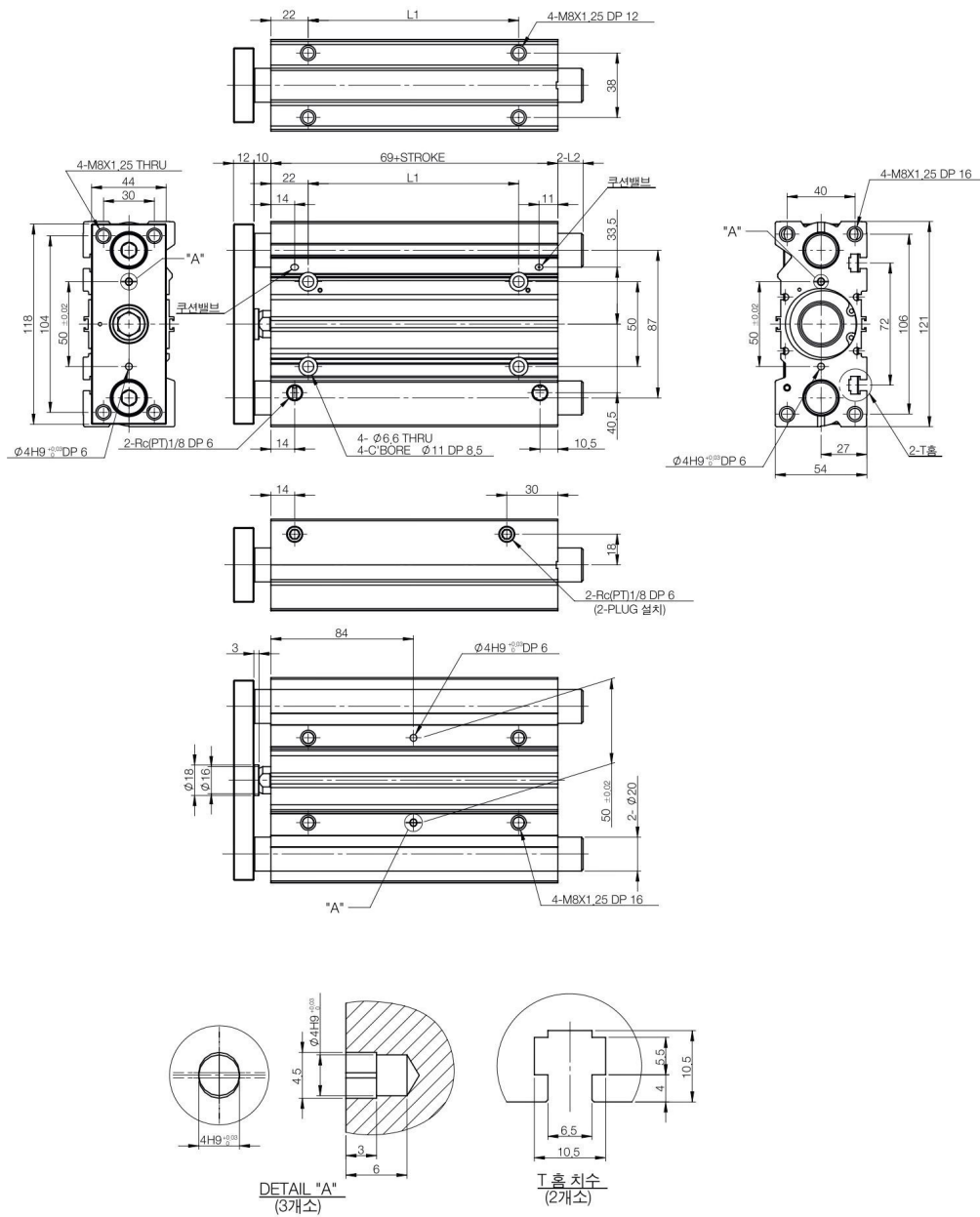


NGQL Dimensions(Ø32)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	16.5	21.5	21.5	41.5	41.5	66.5	66.5	66.5	66.5
L3	45	45	45	83	83	83	83	121	121

## **NGQ Air cushion Series**

Drawing/NGQM Ø40 Air cushion Type

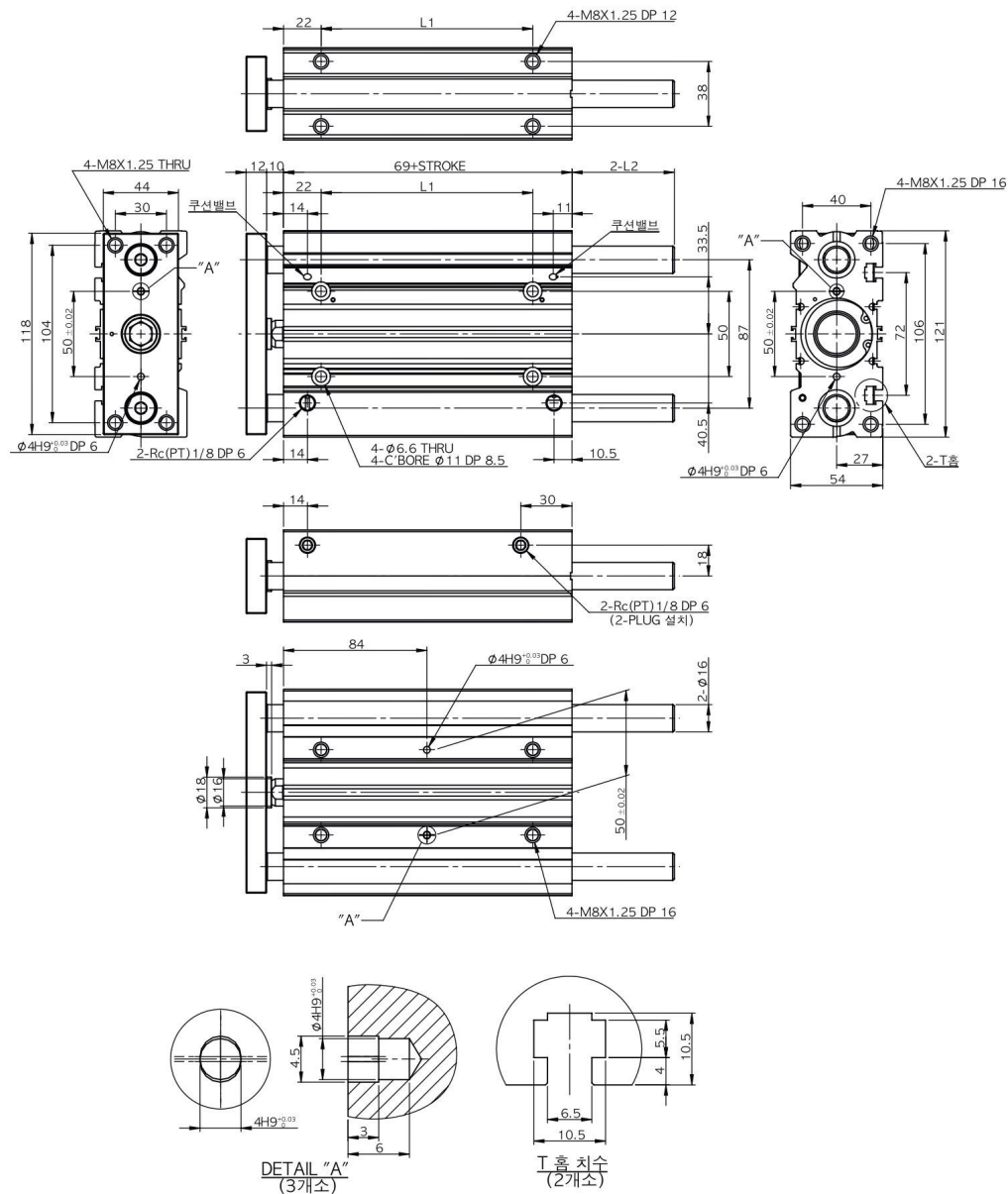


### NGQM Dimensions(Ø40)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	0	10	15	15	20	20	40	40	40
L3	46	46	46	84	84	84	84	122	122



## Drawing./NGQL Ø40 Air cushion Type

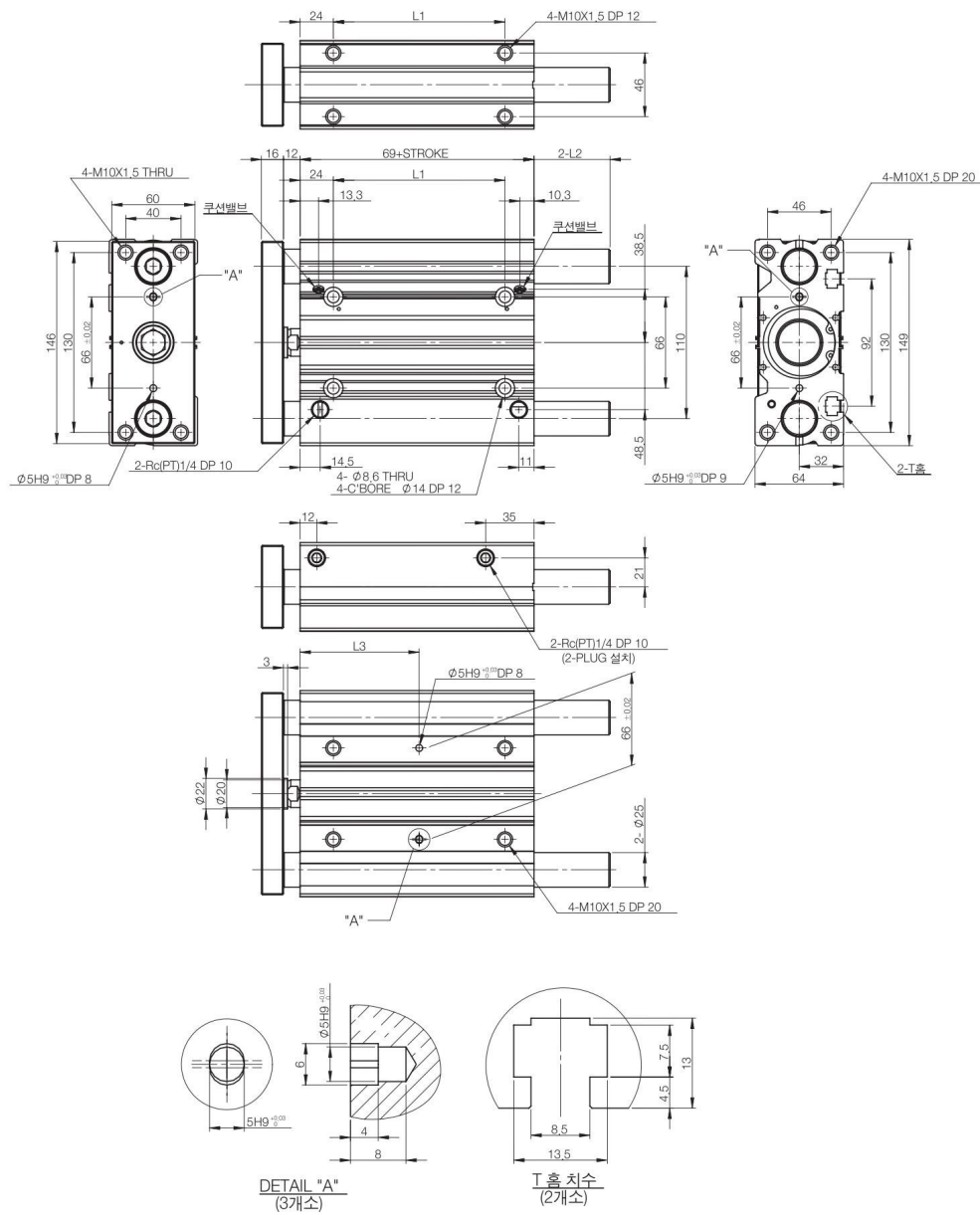


NGQL Dimensions(Ø40)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	10	15	15	35	35	60	60	60	60
L3	46	46	46	84	84	84	84	122	122

# NGQ Air cushion Series

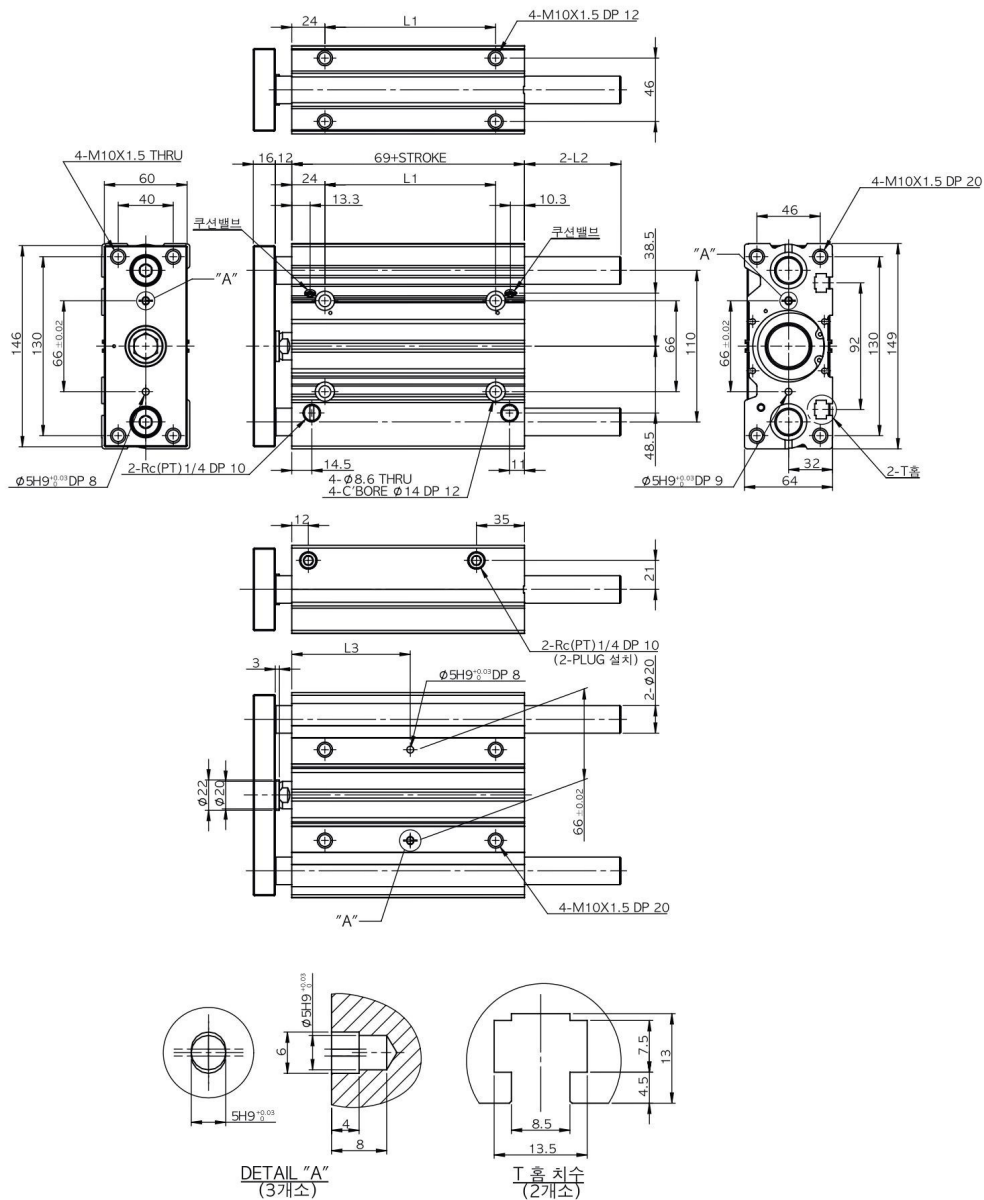
## Drawing/NGQM Ø50 Air cushion Type



NGQM Dimensions(Ø50)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	0	15	25	25	30	30	50	50	50
L3	48	48	48	86	86	86	86	124	124

## Drawing/NGQL Ø50 Air cushion Type

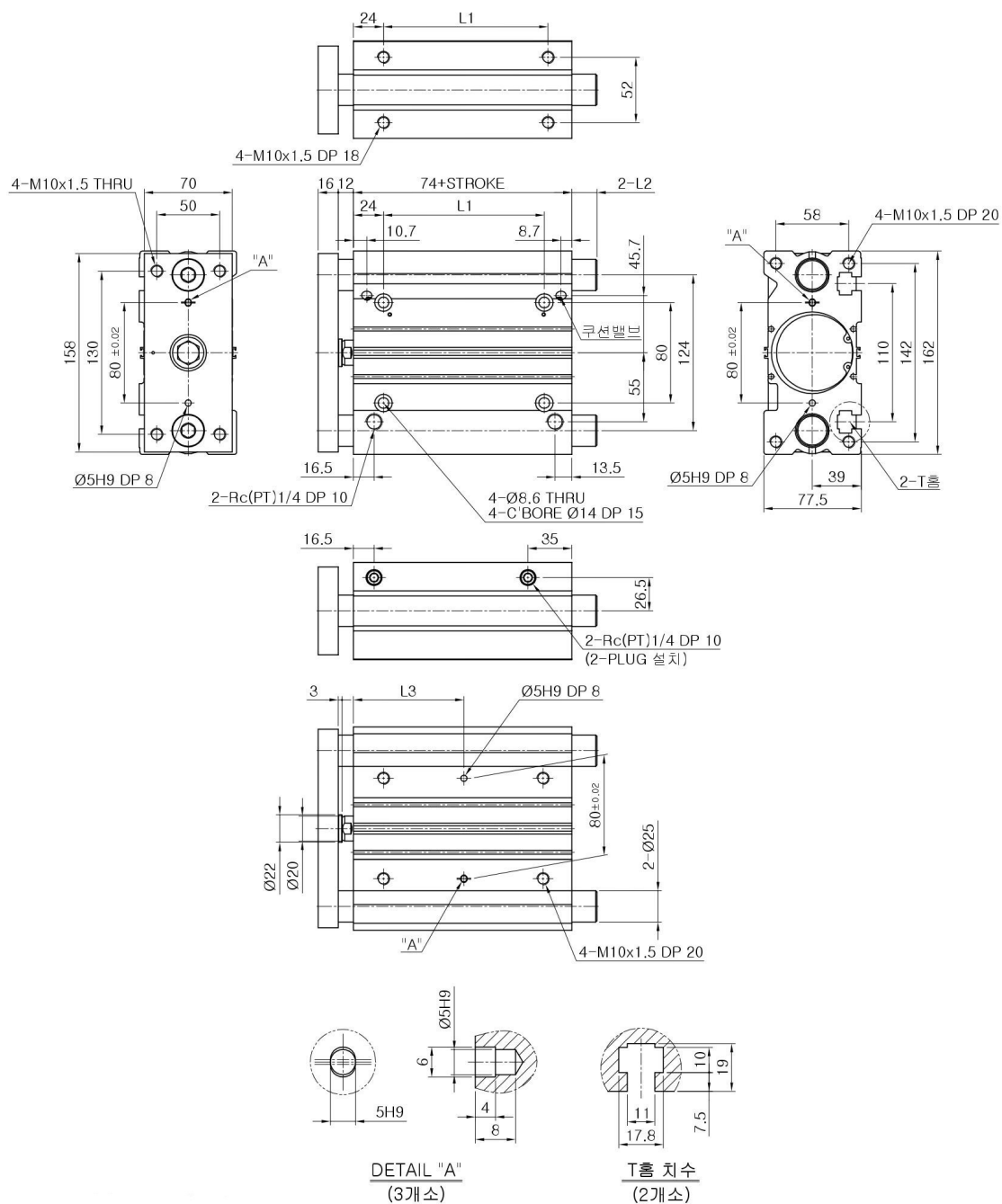


NGQL Dimensions(Ø50)

STROKE	25	50	75	100	125	150	175	200	250
L1	48	48	48	124	124	124	124	200	200
L2	20	25	25	45	45	70	70	70	70
L3	48	48	48	86	86	86	86	124	124

# NGQ Air cushion Series

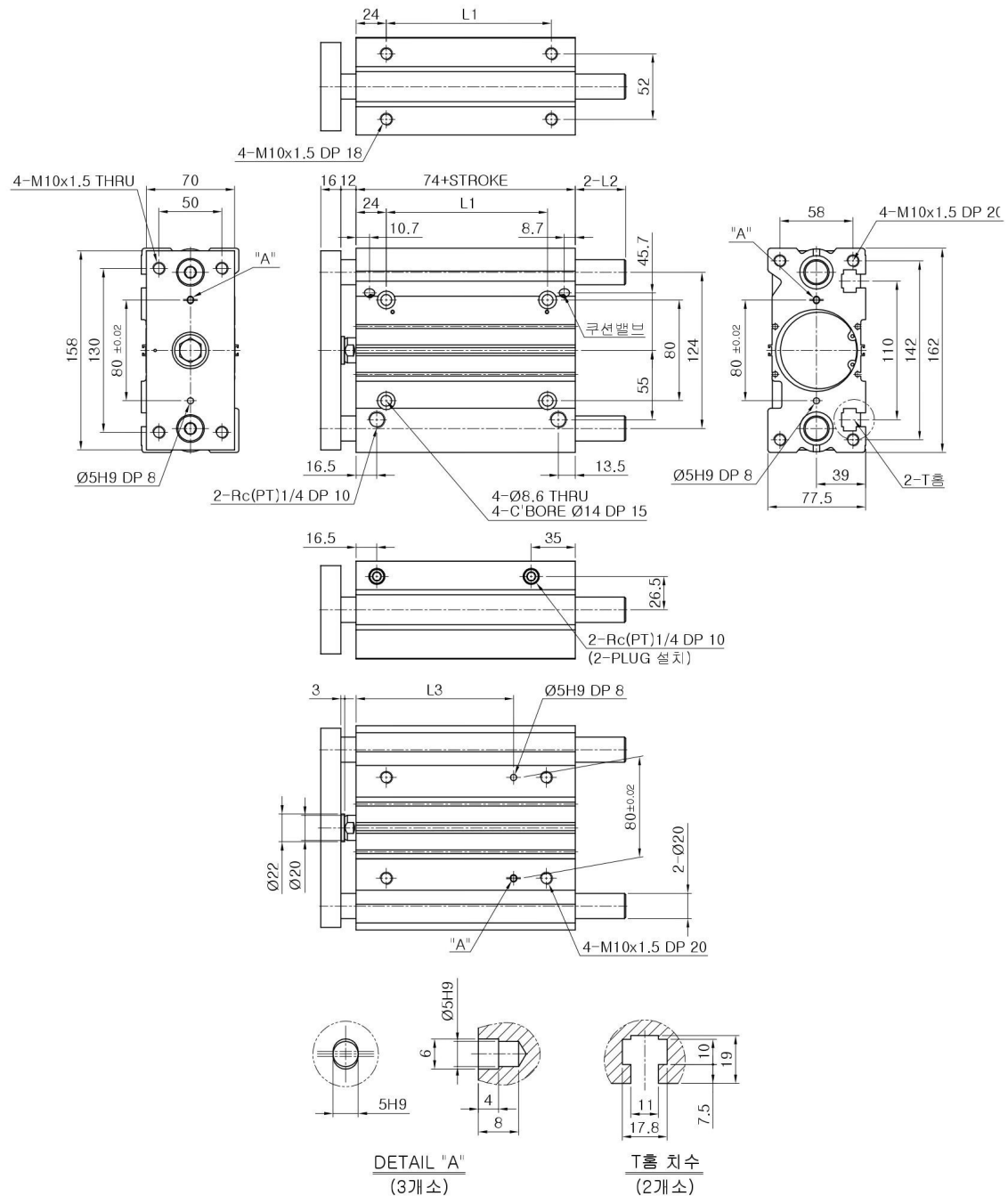
Drawing/NGQM Ø63 Air cushion Type



NGQM Dimensions(Ø63)

STROKE	25	50	75	100	125	150	175	200	250
L1	52	52	52	128	128	128	128	200	200
L2	0	10	20	20	25	25	45	45	45
L3	50	50	50	88	88	88	88	124	124

## Drawing/NGQL Ø63 Air cushion Type



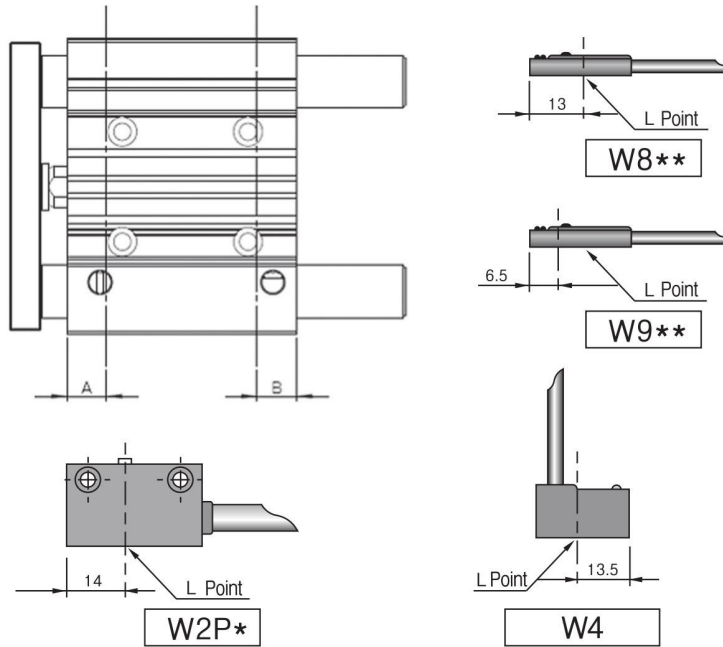
NGQL Dimensions(Ø63)

STROKE	25	50	75	100	125	150	175	200	250
L1	52	52	52	128	128	128	128	200	200
L2	15	20	20	40	40	65	65	65	65
L3	50	50	50	88	88	88	88	124	124



## NGQ Air cushion Series

Auto Switch's Proper Attachment Position (Under Condition that Forward and Backward Full Stroke is Used)



(Unit : mm)

Bore Size	A Point Position	B Point Position
Ø20	35.5+Spacer length	26.5
Ø25	35+Spacer length	27.5
Ø32	35+Spacer length	27.5
Ø40	44+Spacer length	26
Ø50	44+Spacer length	26
Ø63	44.5+Spacer length	29

(Unit : mm)

Switch Type	L Point Position (Detection Position)	Remarks
W8 **	13	Able to use all the NGQ
W9 **	6.5	
W4	13.5	Able to use internal diameter between Ø32 and Ø100
W2P *	14	

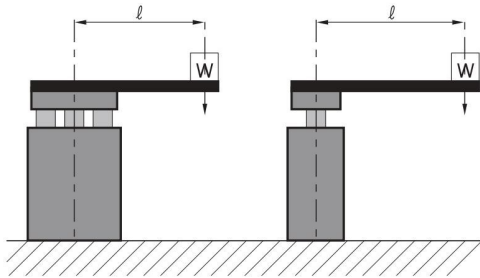
★ In attaching switch, please use it after matching cylinder's A point or B point with the switch's L point.

### 〈Cautions〉

In attaching two auto switches, Min. stroke should be operated more than 10 stroke. But in attaching W2P\* switch, it can be operated more than 15 stroke.

## NGQ Air cushion Series

### In Vertical Attachment – NGQM / Slide Bearing



#### ※ Using Condition

Pressure Applied  $P = 5 \sim 7 \text{ kgf/cm}^2$

Cylinder Speed  $V \approx 250 \text{ mm/s}$  (50 ~ 300 mm/s)

Eccentric Distance =  $l$  (mm)

Applied Weight =  $W$  (kgf)

Note 1) Used pressure of  $5 \sim 7 \text{ kgf/cm}^2$  is recommended.

Note 2) When cylinder speed exceeds 30mm/s

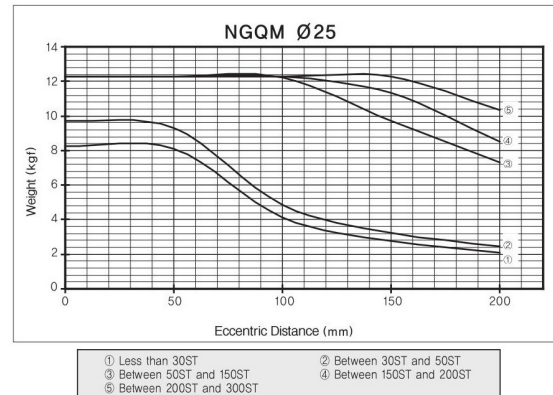
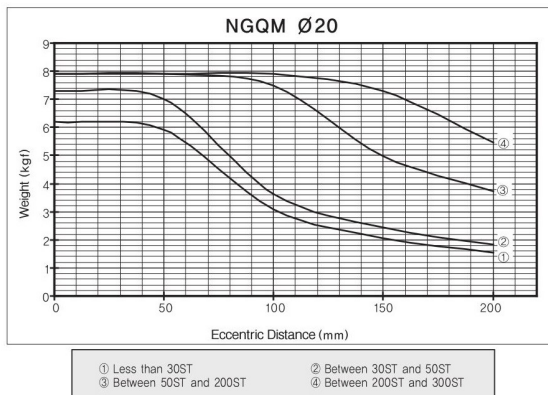
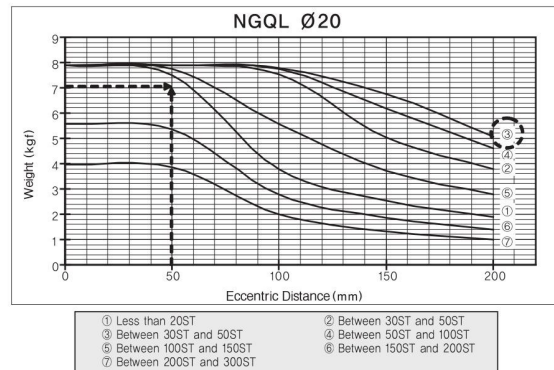
Table 3. Applied Load Ratio

#### (Selected Example)

1. How to Attach : Vertical Attachment
2. Applied Bearing : Ball Bearing
3. Max. Cylinder Speed: 20mm/s
4. Applied Load : 7kgf
5. Applied Stroke : 50 Stroke
6. Eccentric Distance : 50mm

#### ※ Selection

1. Select ball bearing among vertical attached graphs.
2. Select a graph to endure load more than 7kgf  
→ NGQL Ø20 ~ Ø100
3. Select a graph matched with 50 stroke and eccentric distance of 50mm and then, select device below the graph's line  
→ Select NGQL Ø20 and apply eccentric distance of 50mm.
4. Selected device is NGQL Ø20-50ST



ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

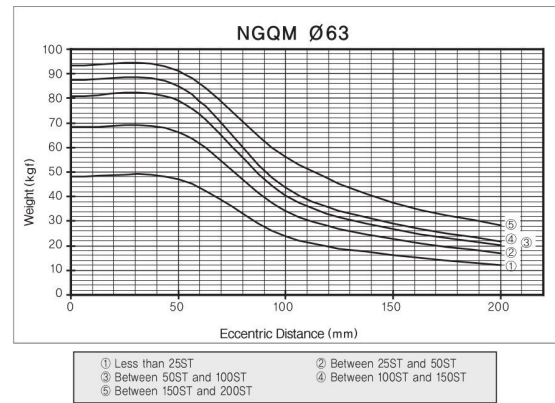
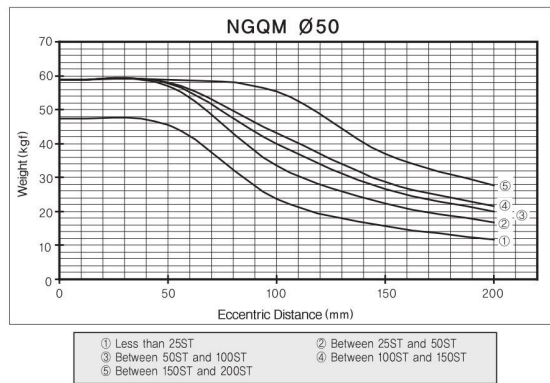
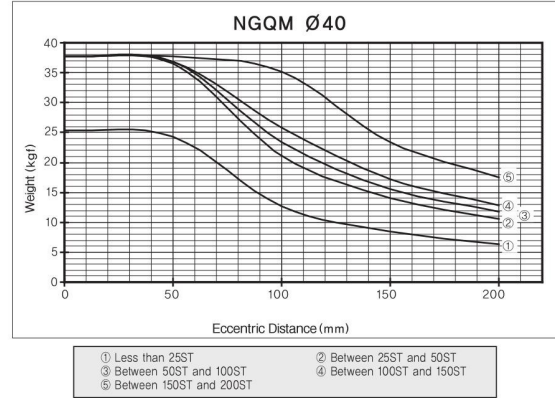
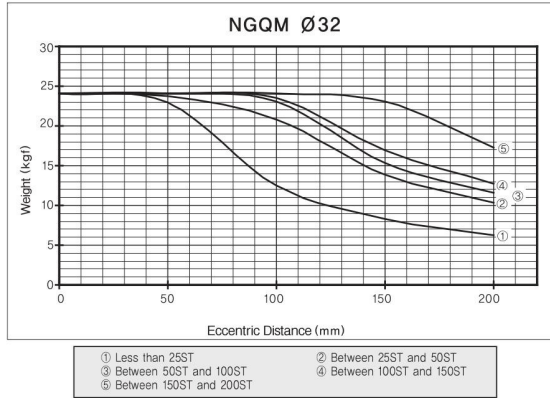
AST

ASTH

NLCD

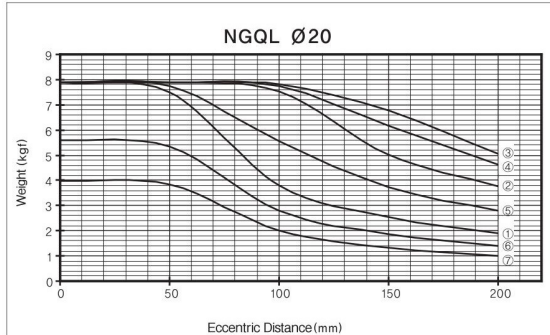
NLCS

## NGQ Air cushion Series

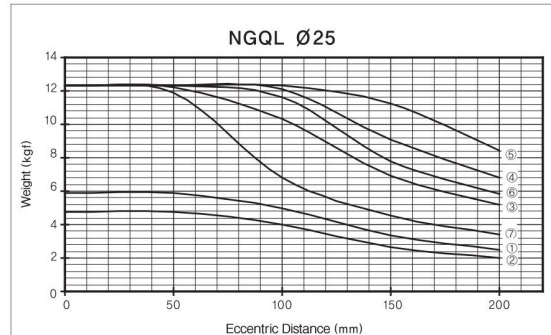


## NGQ Air cushion Series

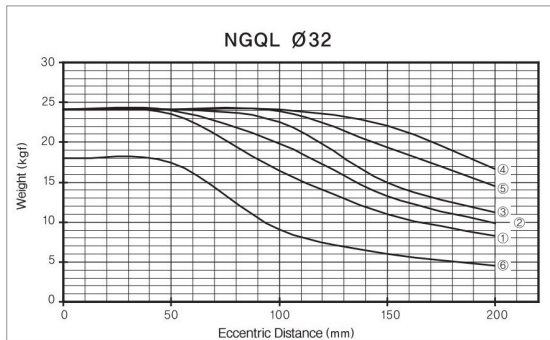
### In Vertical Attachment – NGQL / Ball Bearing



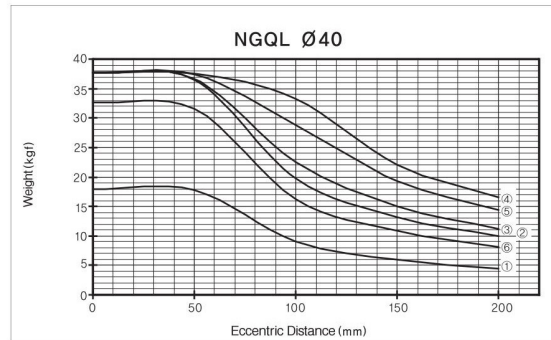
- |                           |                           |
|---------------------------|---------------------------|
| ① Less than 20ST          | ② Between 20ST and 50ST   |
| ③ Between 30ST and 50ST   | ④ Between 50ST and 100ST  |
| ⑤ Between 100ST and 150ST | ⑥ Between 150ST and 200ST |
| ⑦ Between 200ST and 300ST |                           |



- |                           |                           |
|---------------------------|---------------------------|
| ① Less than 20ST          | ② Between 20ST and 50ST   |
| ③ Between 30ST and 50ST   | ④ Between 50ST and 100ST  |
| ⑤ Between 100ST and 150ST | ⑥ Between 150ST and 200ST |
| ⑦ Between 200ST and 300ST |                           |



- |                           |                           |
|---------------------------|---------------------------|
| ① Less than 25ST          | ② Between 25ST and 50ST   |
| ③ Between 50ST and 100ST  | ④ Between 100ST and 150ST |
| ⑤ Between 150ST and 200ST | ⑥ Between 200ST and 300ST |



- |                           |                           |
|---------------------------|---------------------------|
| ① Less than 25ST          | ② Between 25ST and 50ST   |
| ③ Between 50ST and 100ST  | ④ Between 100ST and 150ST |
| ⑤ Between 150ST and 200ST | ⑥ Between 200ST and 300ST |

ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

**NGQ**

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

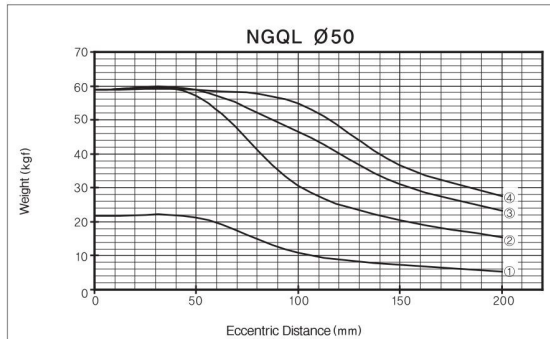
AST

ASTH

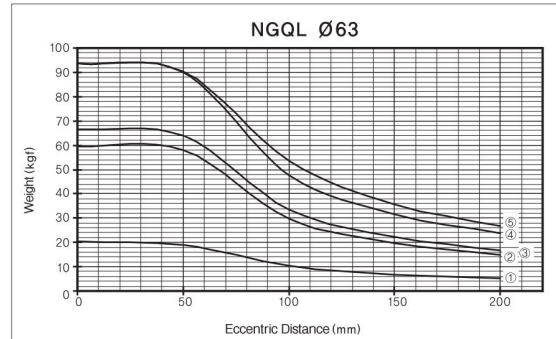
NLCD

NLCS

## NGQ Air cushion Series



- ① Less than 25ST      ② Between 25ST and 100ST, Between 200ST and 300ST  
 ③ Between 100ST and 150ST      ④ Between 150ST and 200ST

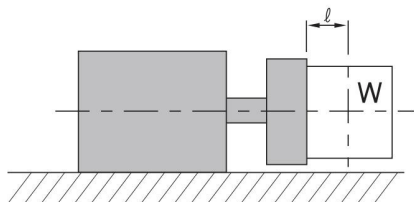


- ① Less than 20ST      ② Between 25ST and 50ST, Between 200ST and 300ST  
 ③ Between 50ST and 100ST      ④ Between 100ST and 150ST  
 ⑤ Between 150ST and 100ST



## NGQ Air cushion Series

### In Horizontal Attachment – NGQM / Slide Bearing



#### 〈Selected Example〉

1. How to Attach : Horizontal Attachment
2. Applied Bearing : Ball Bearing
3. Max. Cylinder Speed : 250 mm/s
4. Applied Load : 5 kgf
5. Applied Stroke : 75 Stroke
6. Eccentric Distance : 100 mm

#### ※Selection

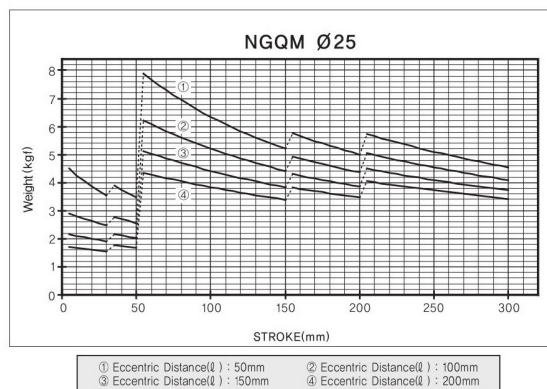
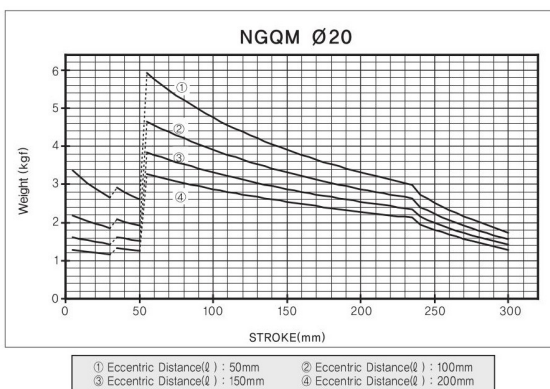
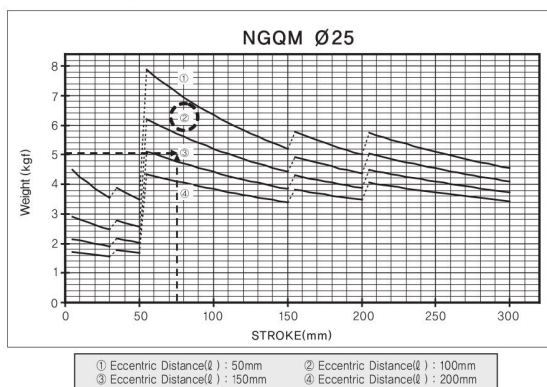
1. Select Slide bearing among vertical attached graphs.
2. Select a graph to endure load more than 5kgf  
→ NGQM Ø20 ~ Ø100
3. Select a graph matched with 75 stroke and eccentric distance of 100mm and then, select device below the graph's line  
→ Select NGQM Ø25 ② and apply 75 stroke.
4. Selected device is NGQL Ø25-75ST

#### ※ Using Condition

Pressure Applied  $P = 5 \sim 7 \text{ kgf/cm}^2$   
 Cylinder Speed  $V \approx 250 \text{ mm/s}$  (50 ~ 300 mm/s)  
 Eccentric Distance =  $l$  (mm)  
 Applied Weight =  $W$  (kgf)

Note 1) Used pressure of  $5 \sim 7 \text{ kgf/cm}^2$  is recommended.  
 Note 2) When cylinder speed exceeds 30mm/s

Table 3. Applied Load Ratio



ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

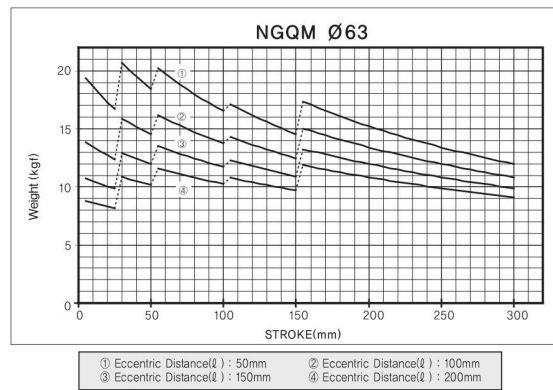
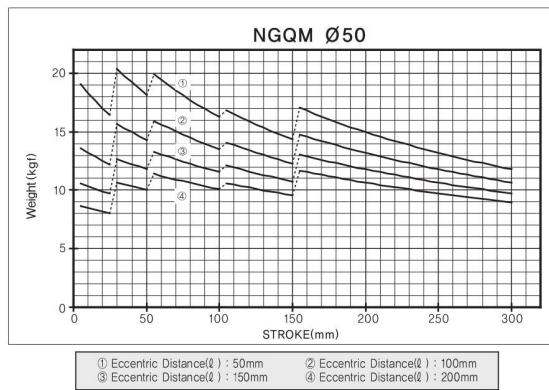
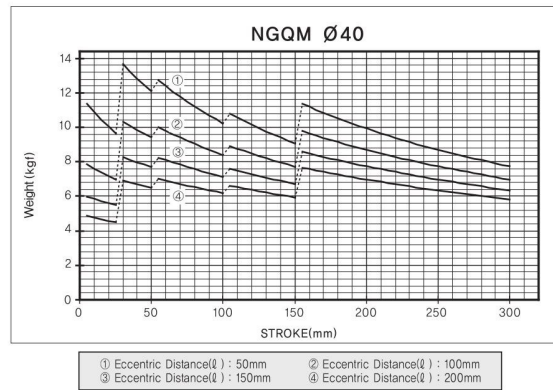
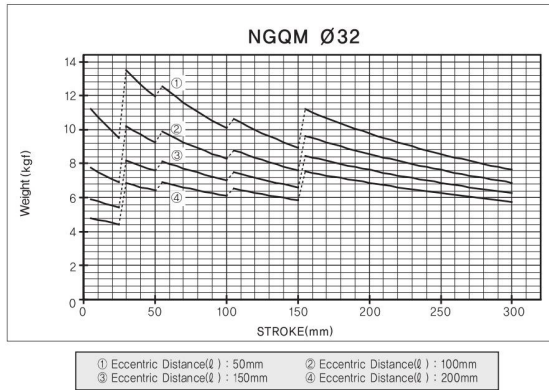
AST

ASTH

NLCD

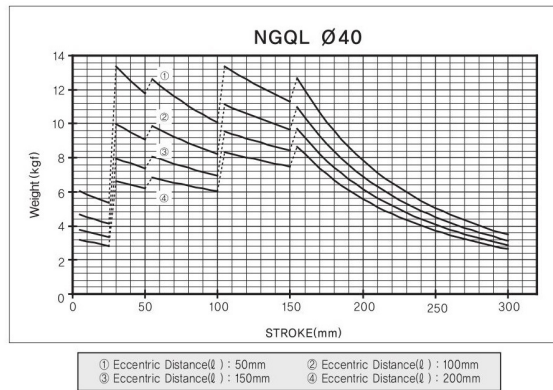
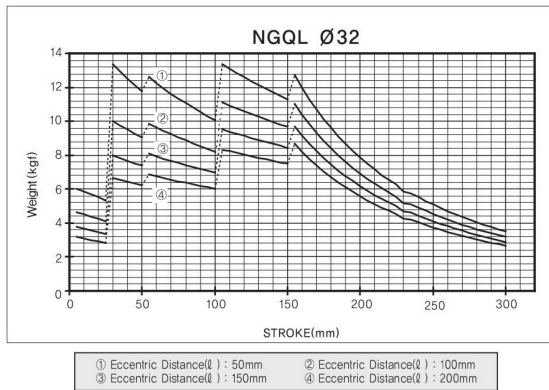
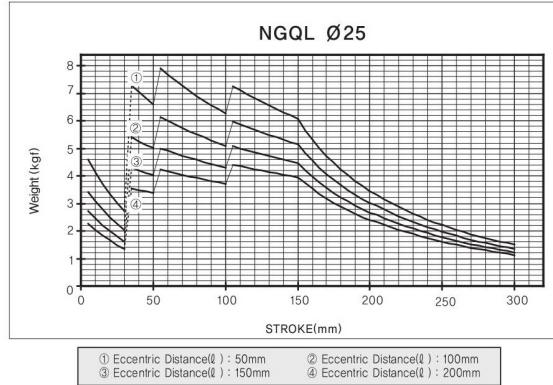
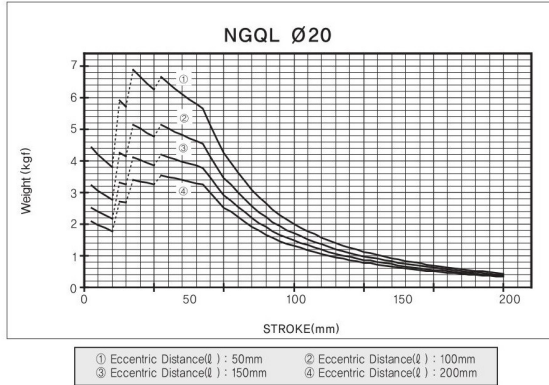
NLCS

## NGQ Air cushion Series



## NGQ Air cushion Series

### In Horizontal Attachment – NGQL / Ball Bearing



ACP

APM

AS

AX

AM2

AM

AL  
ALXAQ  
ADQAQ2  
ADQ2AJ  
AJM

ABK

ACK1

NSK

AG

**NGQ**AGX  
GX

NP

ADR

AMR

NDM

ARD

NST

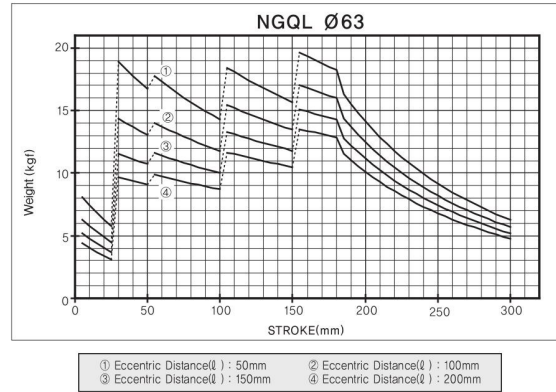
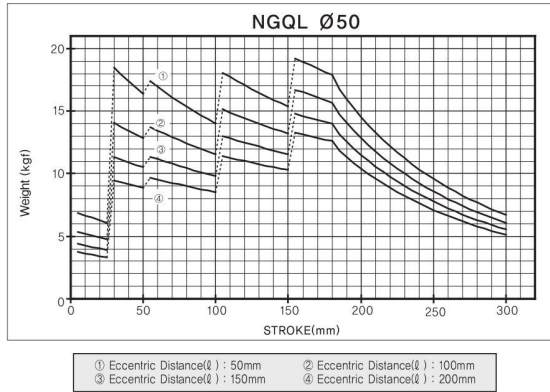
AST

ASTH

NLCD

NLCS

## NGQ Air cushion Series



### Applied Load Ratio

Table 3. Applied Load Ratio When Cylinder Speed is Faster Than 300mm/s

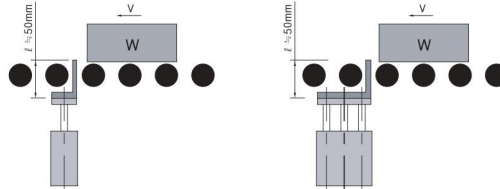
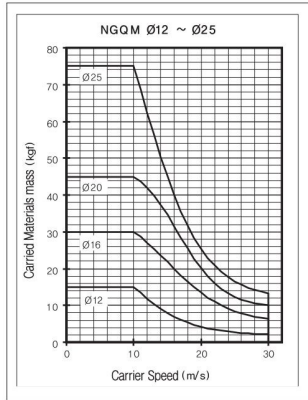
Bore Size	Applied Load Ratio			
	Vertical Attachment		Horizontal Attachment	
	NGQM	NGQL	NGQM	NGQL
Ø20	Lower than 20%	Lower than 25%	Lower than 25%	Lower than 50%
Ø25	Lower than 25%	Lower than 25%	Lower than 30%	Lower than 60%
Ø32	Lower than 20%	Lower than 25%	Lower than 30%	Lower than 50%
Ø40	Lower than 25%	Lower than 30%	Lower than 60%	Lower than 80%
Ø50	Lower than 30%	Lower than 30%	—	—
Ø63	Lower than 35%	Lower than 35%	—	—

※Recommend that the previous table's selected load is applied to the above table's ratio.

## NGQ Air cushion Series

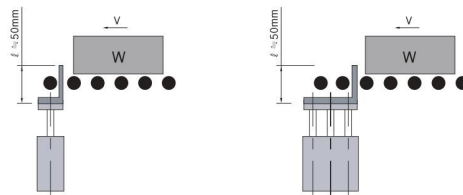
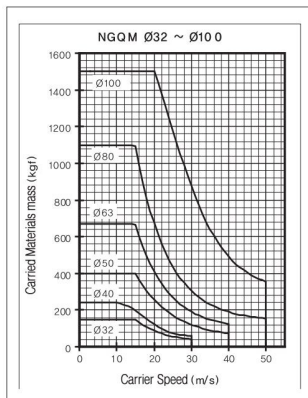
### Load Range When it is Used for Stopper

Bore Size  $\varnothing 12 \sim \varnothing 25$  / NGQM12~25(Slide Bearing)



※ When L size is longer, please select right equipment having enough tube internal diameter.  
 Note 1) When it is used as stopper, please select 30 stroke and lower.  
 Note 2) NGQL (ball bearing) can be used as stopper.

Bore Size  $\varnothing 32 \sim \varnothing 100$  / NGQM32~100(Slide Bearing)



※ When L size is longer, please select right equipment having enough tube internal diameter.  
 Note 1) When it is used as stopper, please select 50 stroke and lower.  
 Note 2) NGQL (ball bearing) can be used as stopper.

ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

AGX

GX

NGQ

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

NLCD

NLCS