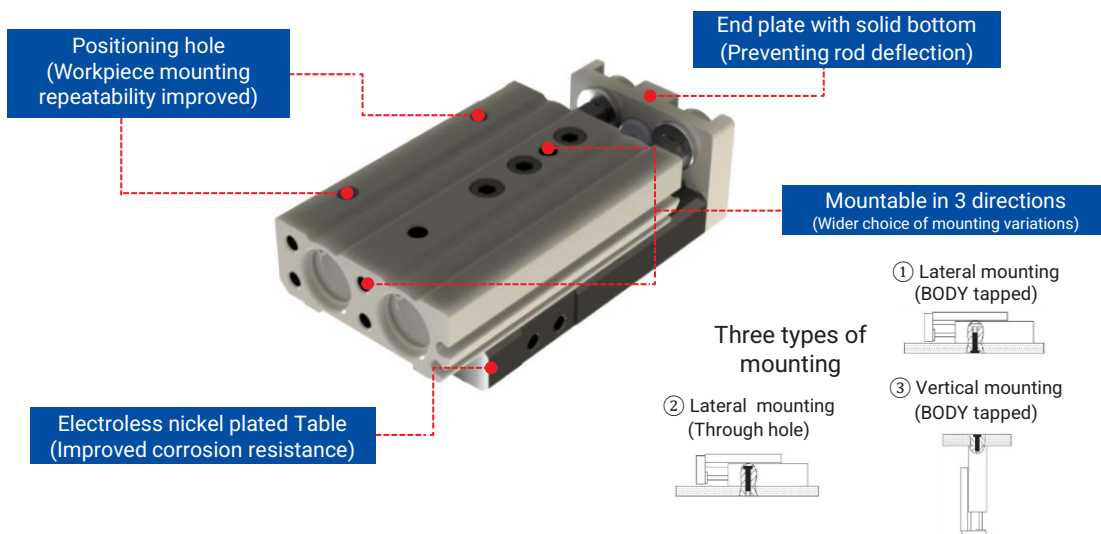
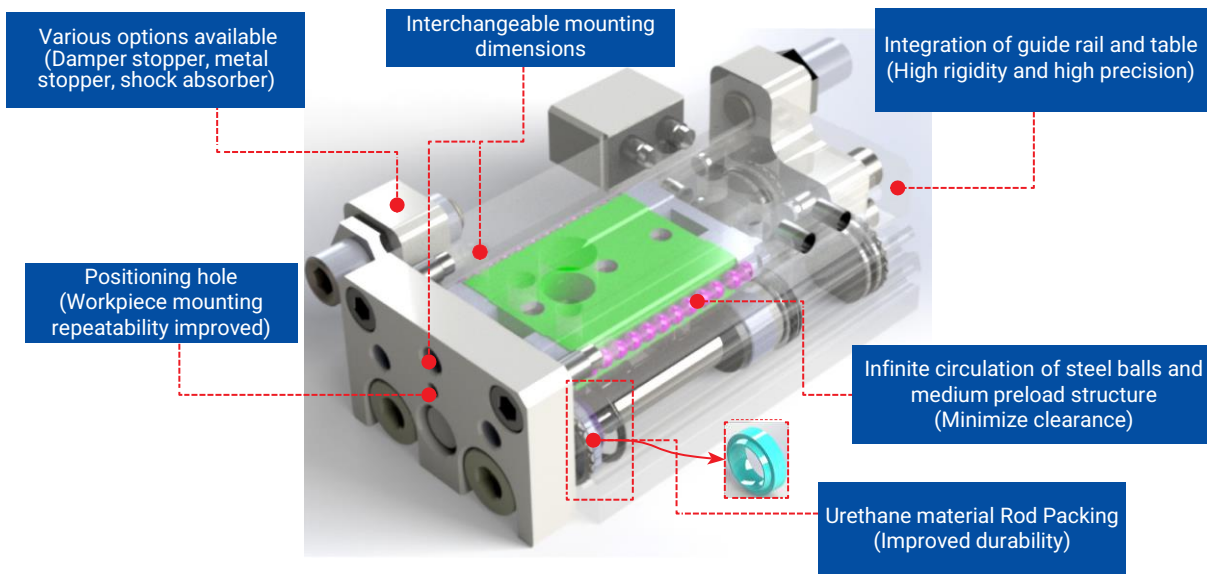


NLGD Series

High-precision Slide Table Cylinder
 Bore sizes : Ø6, Ø8, Ø12, Ø16, Ø20, Ø25



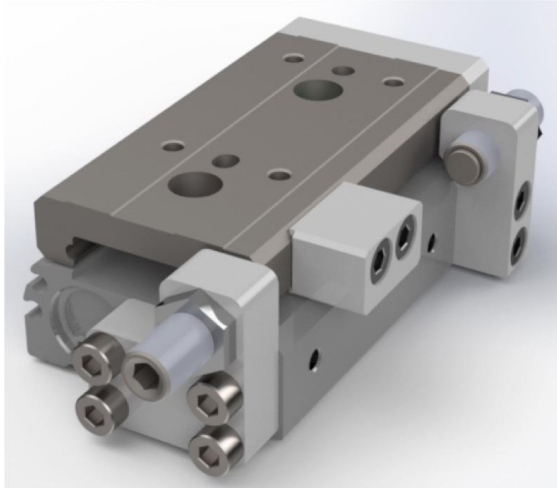
Variations of NLGD Series

Type		Stroke (mm)										Adjuster Options
Standard	Reversible	10	20	30	40	50	75	100	125	150		
NLGD06	NLGD06L	○	○	○	○	○	-	-	-	-	Damper stopper Metal stopper Shock absorber	
NLGD08	NLGD08L	○	○	○	○	○	○	-	-	-		
NLGD12	NLGD12L	○	○	○	○	○	○	○	-	-		
NLGD16	NLGD16L	○	○	○	○	○	○	○	○	-		
NLGD20	NLGD20L	○	○	○	○	○	○	○	○	○		
NLGD25	NLGD25L	○	○	○	○	○	○	○	○	○		

NLGD Series

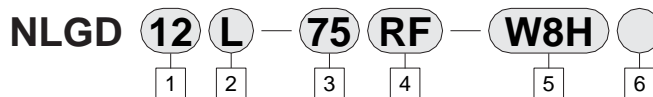
High-precision Slide Table Cylinder

Bore sizes : Ø6, Ø8, Ø12, Ø16, Ø20, Ø25



- Significant improvement in theoretical load capacity compared to our existing table cylinder (NLPD Series)
- Excellent parallelism, traveling parallelism and precision
 - Minimized clearance with medium preload structure
- Improved workpiece mounting repeatability
 - Positioning holes on PLATE, TABLE, BODY (H9 tolerance)
- Improved durability with urethane material rod packing and special grease
- End plate with solid bottom to prevent rod deflection
- Improved corrosion resistance with electroless nickel plated table
- Wide choice of mounting variations and adjuster options
- Secondary battery cell specifications available
- Compatible with competitors' design and dimensions

HOW TO ORDER



1 Bore Size

06 : 6mm
08 : 8mm
12 : 12mm
16 : 16mm
20 : 20mm
25 : 25mm

2 Mounting Type

Blank : Standard
L : Reversible

3 Bore Size - Stroke

Bore Size	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
6	•	•	•	•	•				
8	•	•	•	•	•	•			
12	•	•	•	•	•	•	•		
16	•	•	•	•	•	•	•	•	
20	•	•	•	•	•	•	•	•	•
25	•	•	•	•	•	•	•	•	•

4 Adjuster Options

1) Damper Stopper
RF : Extension stroke end 2) Shock Absorber
RB : Retraction stroke end SF : Extension stroke end
R : Both ends (RF+RB) SB : Retraction stroke end
S : Both ends (SF+SB)

2) Metal Stopper
MF : Extension stroke end *Shock absorber is not
MB : Retraction stroke end available for NLGD06 series.
M : Both ends (MF+MB)

5 Auto Switches

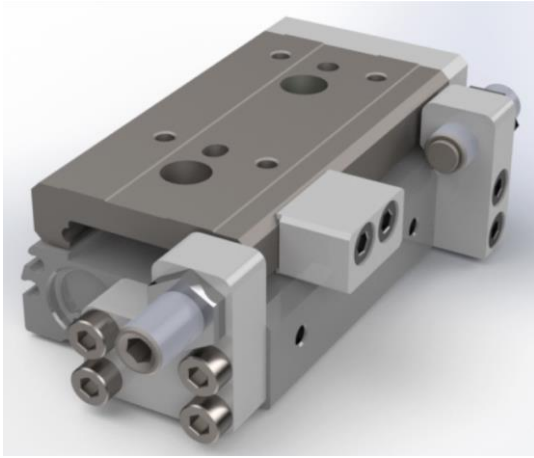
Blank : No auto switch
W8H : Reed switch (Horizontal) W8V : Reed switch (Vertical)
W9H : Solid state switch (Horizontal) W9V : Solid state switch (Vertical)
W9HN : Solid state switch (NPN), 3-wire
W9HP : Solid state switch (PNP), 3-wire
W10V : Solid state switch (Vertical)
W20H : Solid state switch (Horizontal), 2-color indication

*For lead wire length, add L by the end of auto switch part number for 3m long lead wire. Unless otherwise specified, lead wire length is 1m.
(i.e. W8HL, W9VL)

6 Number of Auto Switches

Blank : 2 pcs
S : 1 pc
N : N pcs

NLGD Series



Specifications

Bore size (Ømm)	6, 8, 12, 16, 20, 25
Fluid	Air
Operation	Double acting
Operating Pressure	0.15~0.7Mpa (1.5~7kgf/cm ²)
Proof Pressure	1.05Mpa (10.7kgf/cm ²)
Ambient and fluid temperature	-10~60°C
Piston Speed	50~500mm/s (With metal stopper: 50 - 200mm/s)
Lubrication	Non-lube
Auto Switch	Reed switch : DC(24V)/AC(110V) Solid state switch : DC(24V)
Stroke Length Tolerance	0~ + 1mm
Adjuster Options	Damper stopper / Metal stopper / Shock-absorber

Options

Wide variety of adjuster options and mounting.

Wider choice of mounting variations available to suit wider range of installation conditions.



Damper stopper



Metal stopper



Shock absorber



Standard type



Reversible type

- Damper stopper
: Standard stroke adjustment unit
- Metal stopper
: Improved stopping accuracy
: Due to having no cushioning function, more reliable with low speed and light load
- Shock-Absorber
: Improved stopping accuracy
: Smooth stopping by absorbing the impact at the end of the stroke

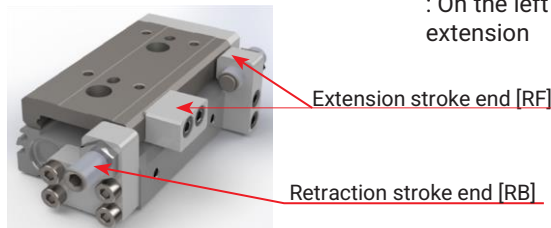
* Adjuster position can be selected from two choices.

- Standard type
: On the right side to the direction of extension
- Reversible type
: On the left side to the direction of extension

Stroke Adjustment Unit

- Extension stroke end [RF]
- Retraction stroke end [RB]
- Both ends [R]

*Stroke adjustment range : 0~5mm



High-precision slide table cylinder *NLGD* Series

Standard stroke

(Unit : mm)

Series	Standard stroke								
	10	20	30	40	50	75	100	125	150
NLGD06	○	○	○	○	○	-	-	-	-
NLGD08	○	○	○	○	○	○	-	-	-
NLGD12	○	○	○	○	○	○	○	-	-
NLGD16	○	○	○	○	○	○	○	○	-
NLGD20	○	○	○	○	○	○	○	○	○
NLGD25	○	○	○	○	○	○	○	○	○

Weight

(Unit : g)

Series	Standard stroke								
	10	20	30	40	50	75	100	125	150
NLGD06	100	120	140	180	200	-	-	-	-
NLGD08	140	170	210	250	315	385	-	-	-
NLGD12	335	340	380	450	480	645	735	-	-
NLGD16	595	600	660	725	820	980	1240	1390	-
NLGD20	1085	1085	1085	1180	1380	1720	2310	2600	2890
NLGD25	1725	1725	1725	1925	2370	2715	3395	4235	4680

Additional weight of adjuster options

Damper stopper		Metal stopper		Shock absorber	
Extension	Retraction	Extension	Retraction	Extension	Retraction
6	9	11	9	-	-
10	15	23	15	25	35
25	35	35	35	45	40
45	55	60	55	80	93
80	90	115	90	152	112
130	150	180	150	230	265

Theoretical output

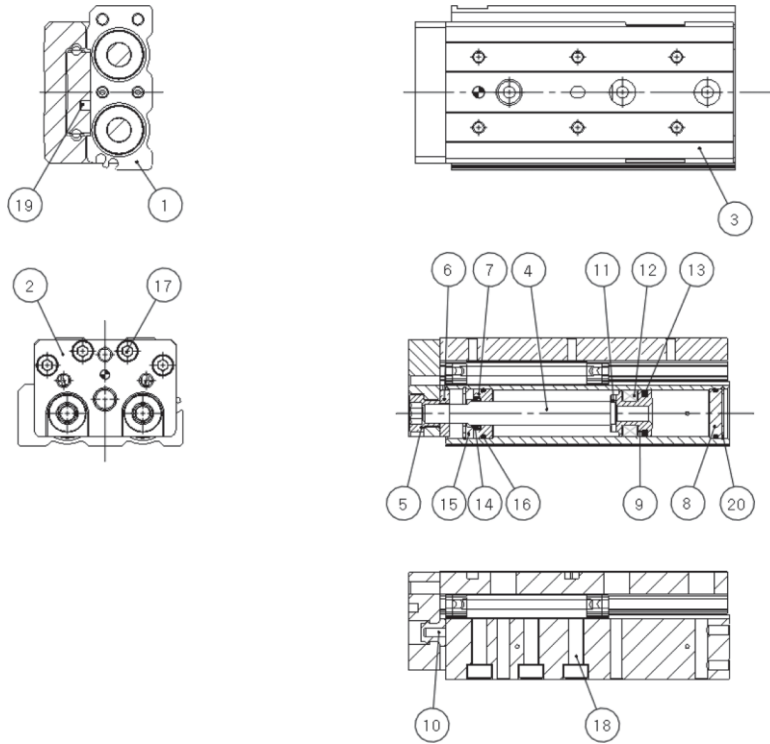
(Unit : N)

Series	Rod size (mm)	Operating direction	Piston Area (mm ²)	Operating pressure (Mpa)					
				0.2	0.3	0.4	0.5	0.6	0.7
NLGD06	3	OUT	57	11	17	23	29	34	40
		IN	42	8	13	17	21	25	29
NLGD08	4	OUT	101	20	30	40	51	61	71
		IN	75	15	23	30	38	45	53
NLGD12	6	OUT	226	45	68	90	113	136	158
		IN	170	34	51	68	85	102	119
NLGD16	8	OUT	402	80	121	161	201	241	281
		IN	302	60	91	121	151	181	211
NLGD20	10	OUT	628	126	188	251	314	377	440
		IN	471	94	141	188	236	283	330
NLGD25	12	OUT	982	196	295	393	491	589	687
		IN	756	151	227	302	378	454	529

* Theoretical output (N) = Pressure [Mpa] × Piston area (mm²)

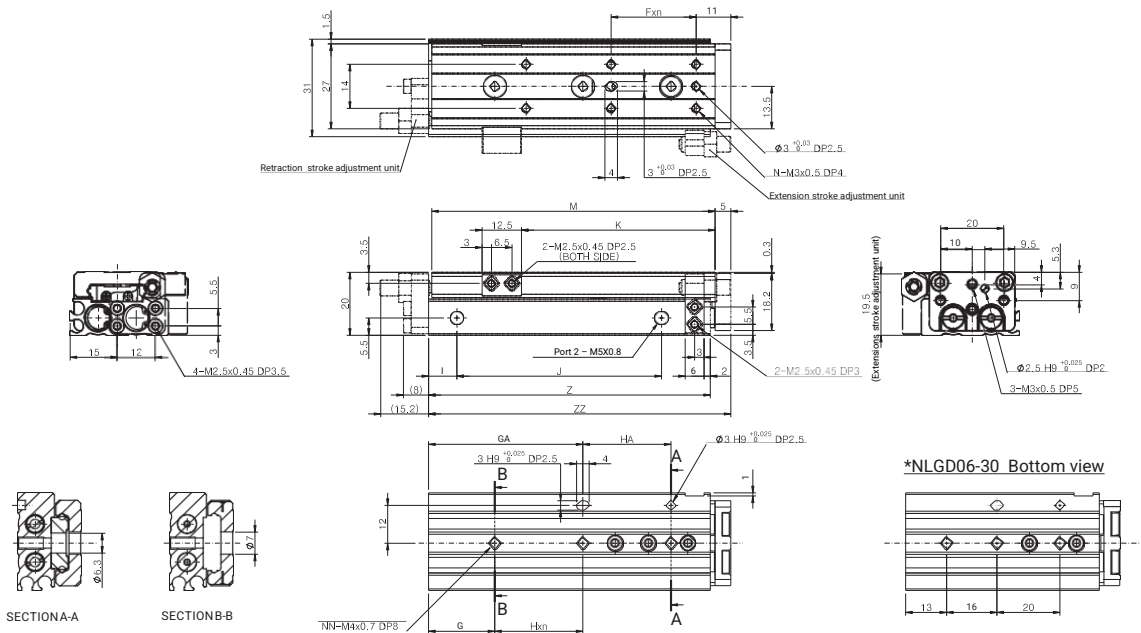
NLGD Series

Structure



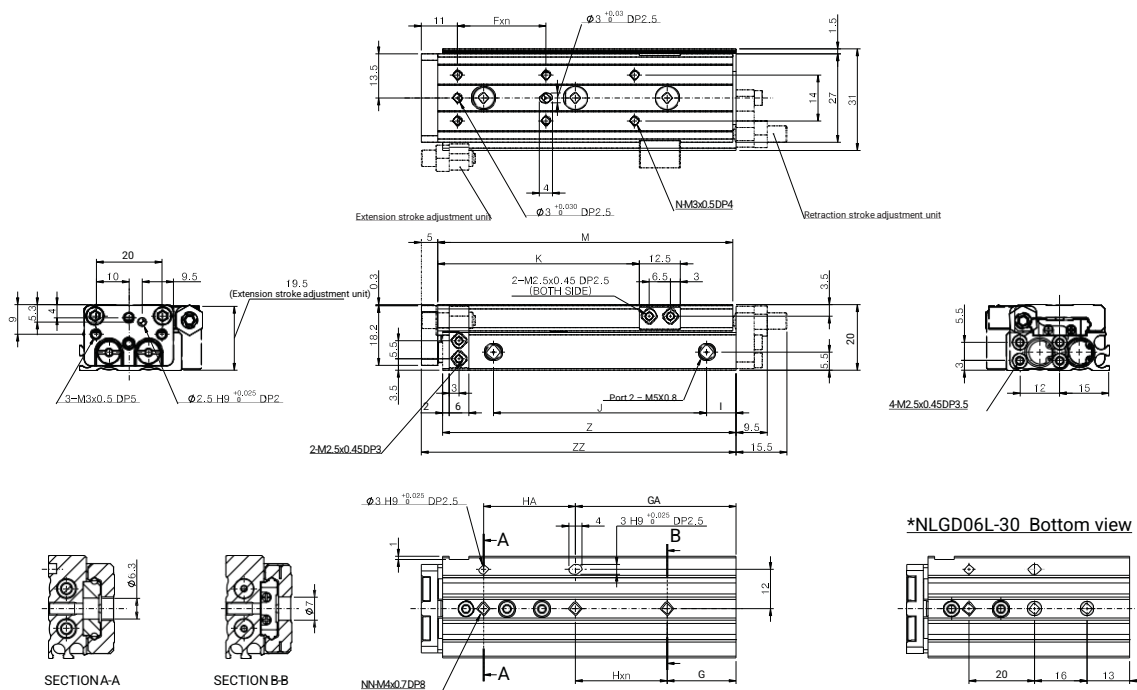
NO.	Description	Material	Remarks
1	BODY	Aluminum alloy	
2	PLATE	Aluminum alloy	
3	TABLE	Alloy steel	Heat treated / electroless nickel plated
4	PISTON ROD	Stainless steel	
5	RETAINER	Stainless steel	
6	RETAINER WASHER	Stainless steel	
7	ROD COVER	Aluminum alloy	
8	HEAD COVER	Aluminum alloy	
9	PISTON	Aluminum alloy	
10	PLATE BUMER	Urethane	
11	BUMPER	Urethane	
12	MAGNET	Steel	
13	PISTON PACKING	NBR	
14	ROD PACKING	Urethane	
15	COVER SPACER	Aluminum alloy	
16	O-RING	NBR	
17	HEXAGON BOLT	Carbon steel	
18	HEXAGON BOLT	Carbon steel	
19	DOWEL PIN	Bearing steel	
20	SNAP RING	Spring steel	

NLGD06 Dimensions



Stroke	F_{xn}	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
50	27x2	6	21	28x2	3	49	28	9	65	61.5	90	89.5	96
40	26x2	6	11	28x2	3	39	28	16	48	51.5	80	79.5	86
30	21x2	6	Note)	Note)	3	29	20	9	37	41.5	62	61.5	68
20	25x1	4	13	26x1	2	13	26	9	27	31.5	52	51.5	58
10	22x1	4	6	23x1	2	13	16	9	17	21.5	42	41.5	48

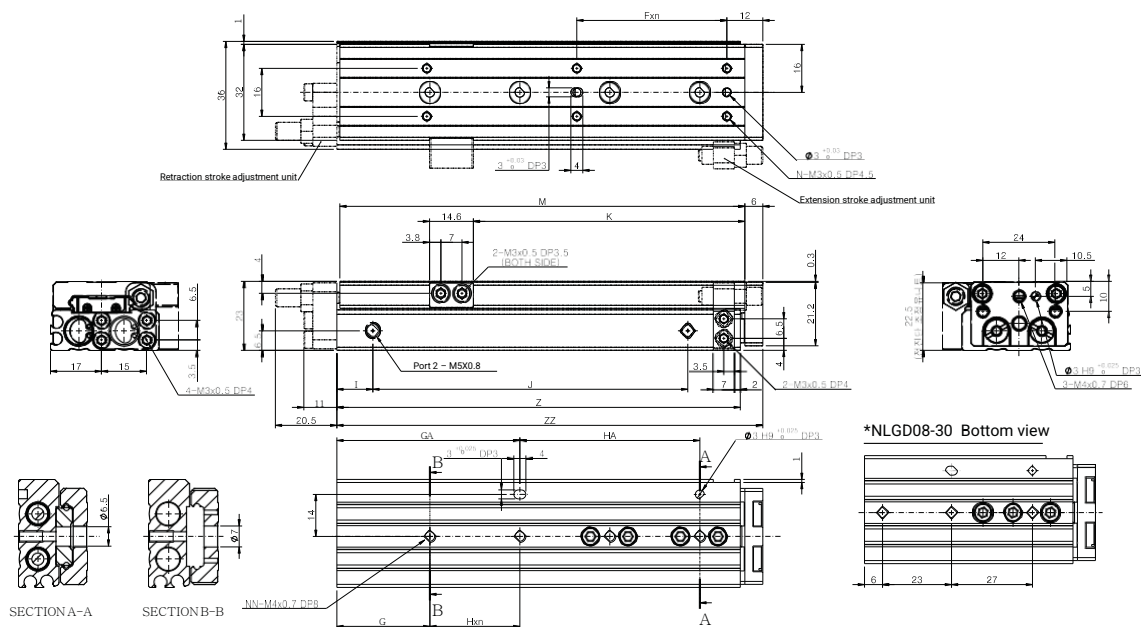
NLGD06L Dimensions (Reversible type)



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
50	27x2	6	21	28x2	3	49	28	9	65	61.5	90	89.5	96
40	26x2	6	11	28x2	3	39	28	16	48	51.5	80	79.5	86
30	21x2	6	Note)	Note)	3	29	20	9	37	41.5	62	61.5	68
20	25x1	4	13	26x1	2	13	26	9	27	31.5	52	51.5	58
10	22x1	4	6	23x1	2	13	16	9	17	21.5	42	41.5	48

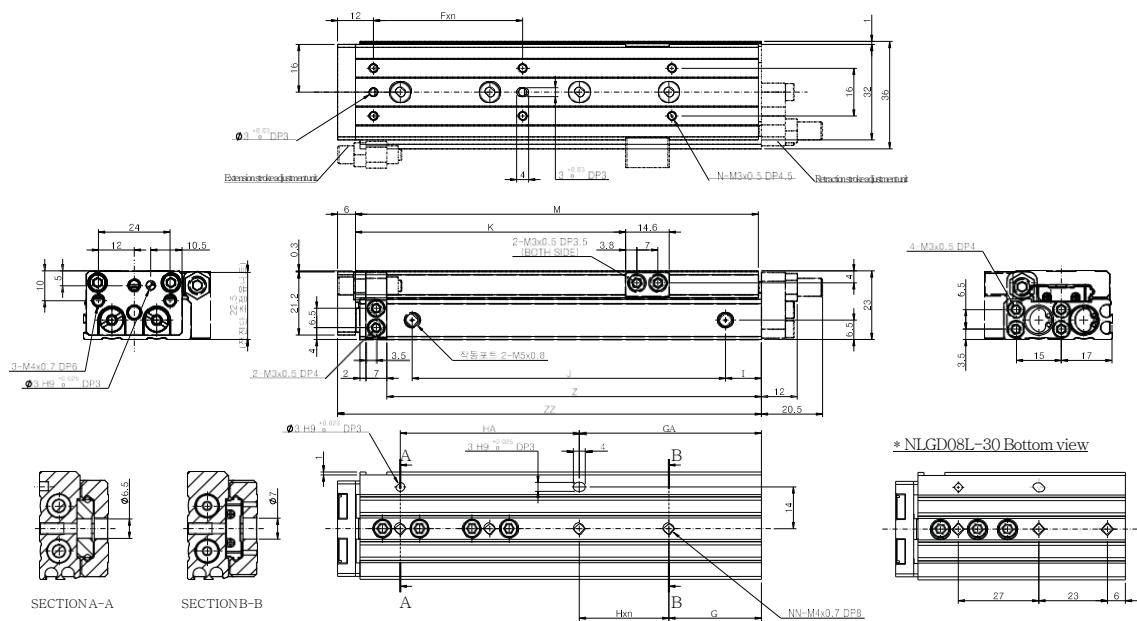
High-precision slide table cylinder NLGD Series

NLGD08 Dimensions



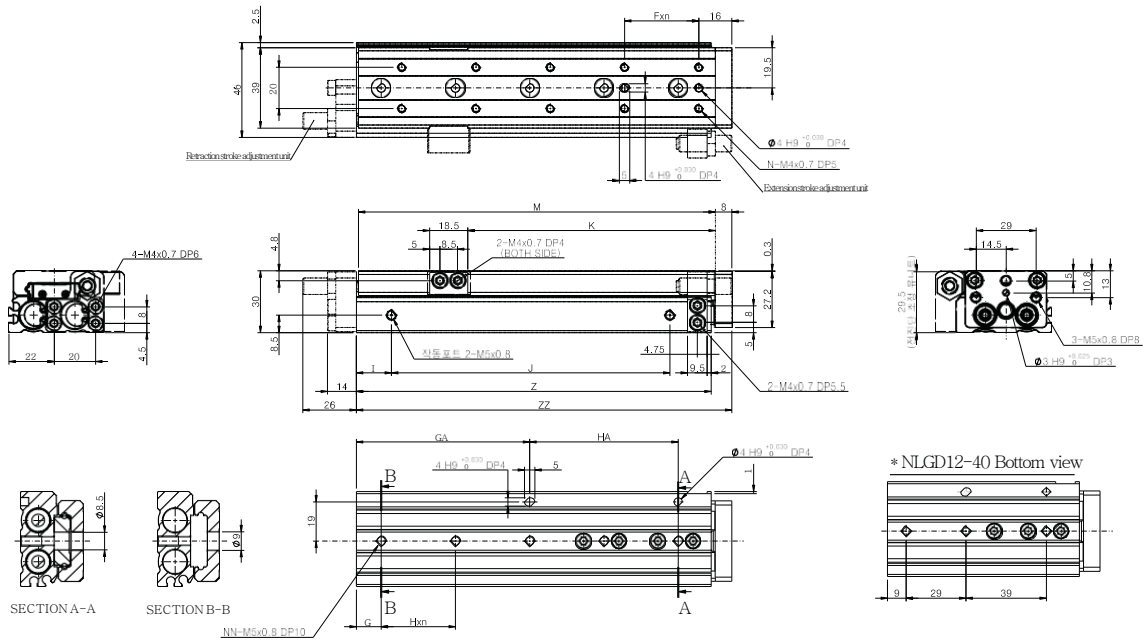
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
75	50x2	6	31	30x3	4	61	60	12	105	90.5	135	134.5	142
50	46x2	6	8	29x3	4	37	58	13	78	65.5	109	108.5	116
40	32x2	6	8	31x2	3	39	31	14	52	55.5	84	83.5	91
30	26x2	6	Note)	Note)	3	29	27	12	40	45.5	70	69.5	77
20	25x1	4	14	28x1	2	14	28	10	28	35.5	56	55.5	63
10	25x1	4	7	25x1	2	13	19	11	17	25.5	46	45.5	53

NLGD08L Dimensions (Reversible type)



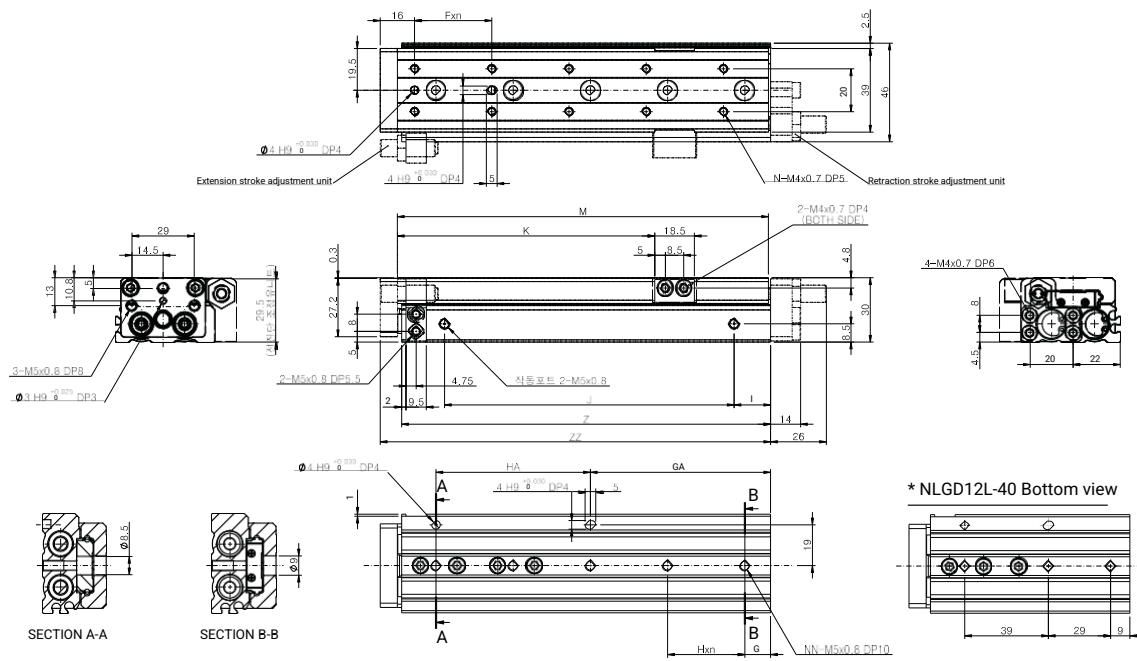
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
75	50x2	6	31	30x3	4	61	60	12	105	90.5	135	134.5	142
50	46x2	6	8	29x3	4	37	58	13	78	65.5	109	108.5	116
40	32x2	6	8	31x2	3	39	31	14	52	55.5	84	83.5	91
30	26x2	6	Note)	Note)	3	29	27	12	40	45.5	70	69.5	77
20	25x1	4	14	28x1	2	14	28	10	28	35.5	56	55.5	63
10	25x1	4	7	25x1	2	13	19	11	17	25.5	46	45.5	53

NLGD12 Dimensions



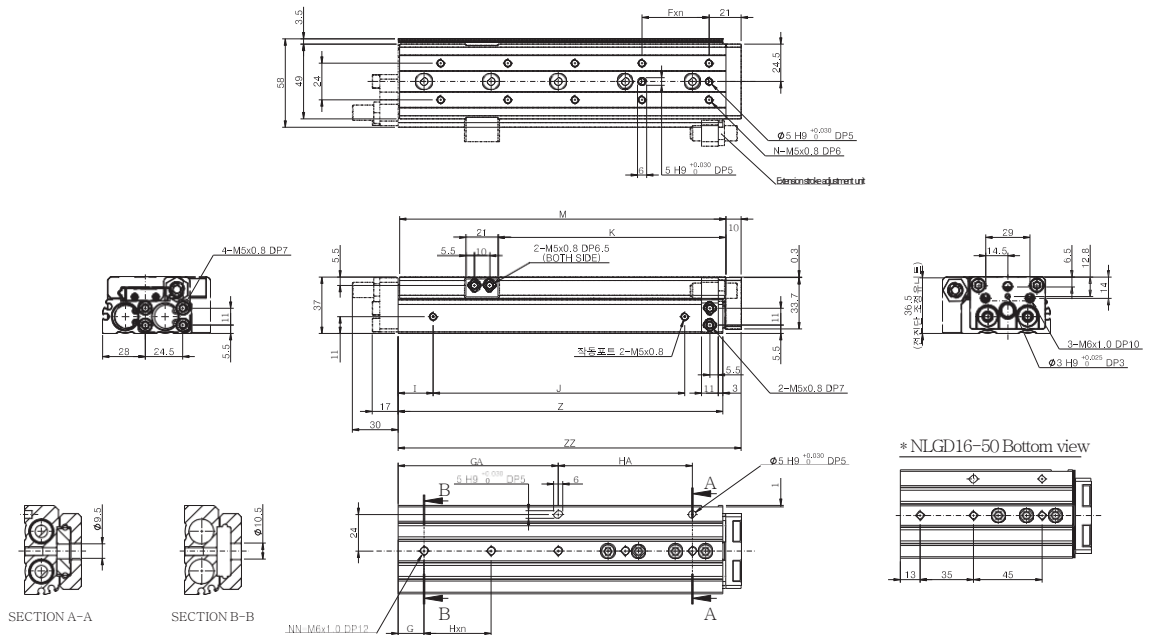
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
100	36x4	10	12	36x4	5	84	72	17	135	120	173	172	182
75	36x3	8	23	36x3	4	59	72	17	110	95	148	147	157
50	34x2	6	9	39x2	3	48	39	13	70	70	104	103	113
40	34x2	6	Note)	Note)	3	38	39	15	58	60	94	93	103
30	38x1	4	20	40x1	2	20	40	14	42	50	77	76	86
20	28x1	4	18	32x1	2	18	32	12	34	40	67	66	76
10	28x1	4	18	32x1	2	18	32	12	34	30	67	66	76

NLGD12L Dimensions (Reversible type)



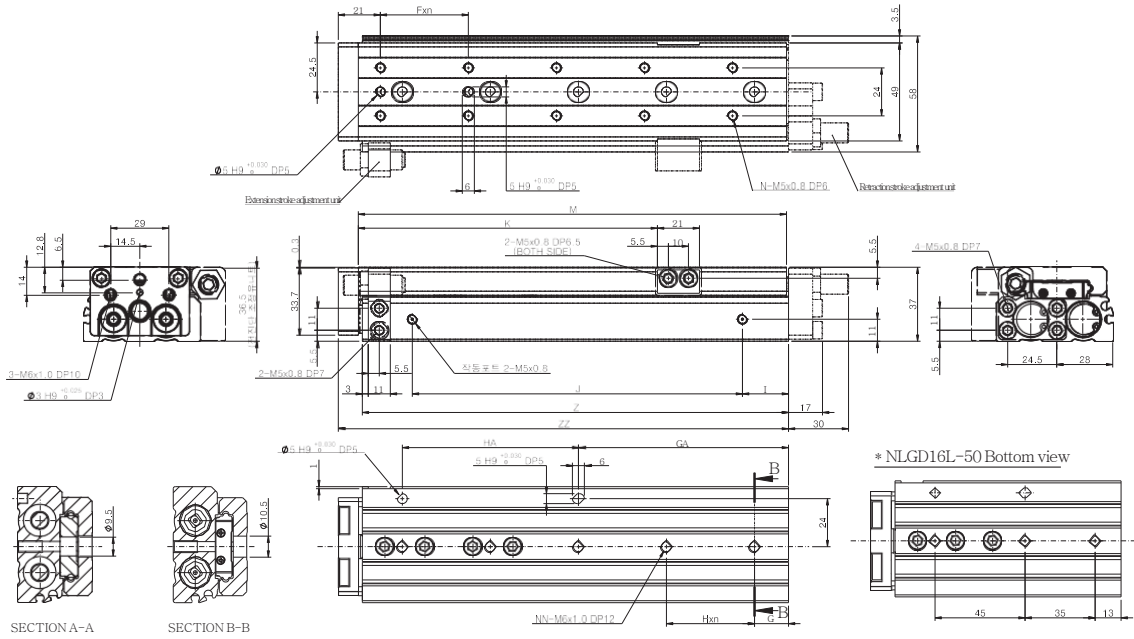
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
100	36x4	10	12	36x4	5	84	72	17	135	120	173	172	182
75	36x3	8	23	36x3	4	59	72	17	110	95	148	147	157
50	34x2	6	9	39x2	3	48	39	13	70	70	104	103	113
40	34x2	6	Note)	Note)	3	38	39	15	58	60	94	93	103
30	38x1	4	20	40x1	2	20	40	14	42	50	77	76	86
20	28x1	4	18	32x1	2	18	32	12	34	40	67	66	76
10	28x1	4	18	32x1	2	18	32	12	34	30	67	66	76

NLGD16 Dimensions



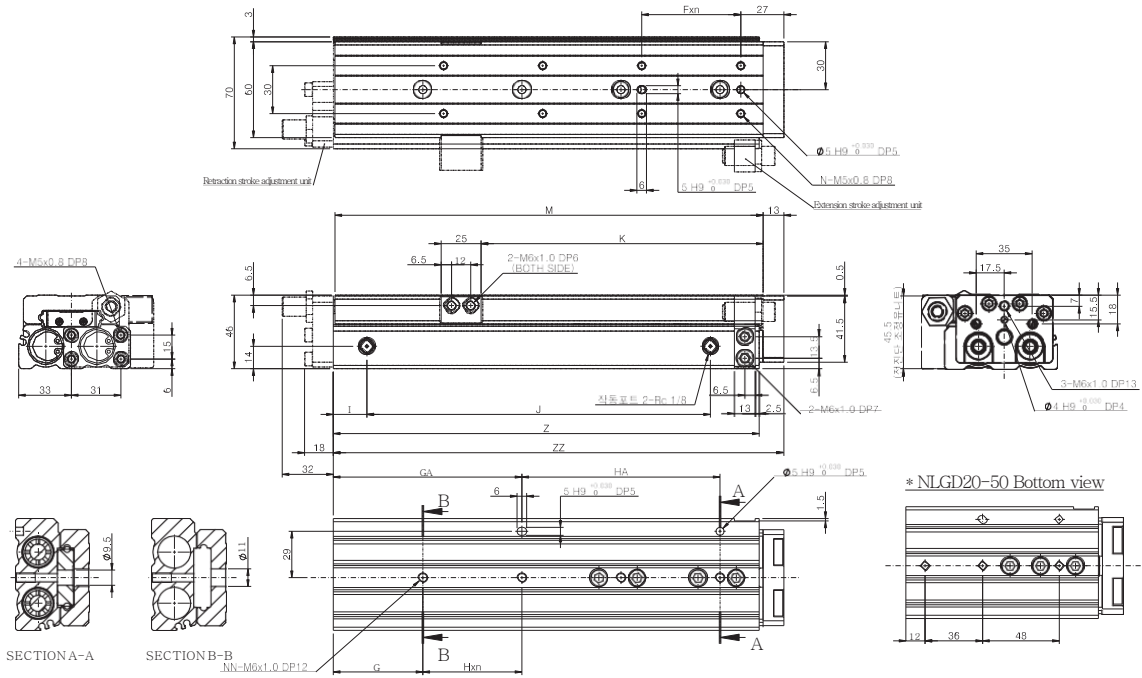
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
125	44x4	10	17	44x4	5	105	88	23	165	149.5	214	213	225
100	44x3	8	36	44x3	4	80	88	18	145	124.5	189	188	200
75	46x2	6	21	52x2	3	73	52	15	105	99.5	146	145	157
50	40x2	6	Note)	Note)	3	48	45	20	68	74.5	114	113	125
40	58x1	4	19	58x1	2	19	58	12	60	64.5	98	97	109
30	48x1	4	19	48x1	2	19	48	12	50	54.5	88	87	99
20	38x1	4	18	39x1	2	18	39	12	40	44.5	78	77	89
10	38x1	4	18	39x1	2	18	39	12	40	34.5	78	77	89

NLGD16L Dimensions (Reversible type)



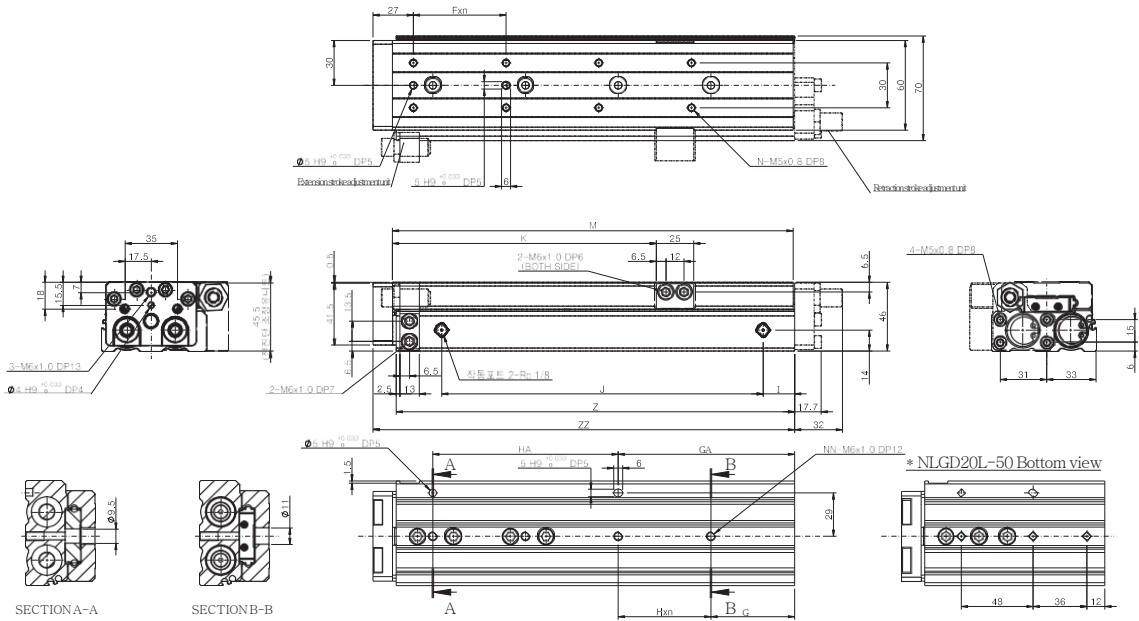
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
125	44x4	10	17	44x4	5	105	88	23	165	149.5	214	213	225
100	44x3	8	36	44x3	4	80	88	18	145	124.5	189	188	200
75	46x2	6	21	52x2	3	73	52	15	105	99.5	146	145	157
50	40x2	6	Note)	Note)	3	48	45	20	68	74.5	114	113	125
40	58x1	4	19	58x1	2	19	58	12	60	64.5	98	97	109
30	48x1	4	19	48x1	2	19	48	12	50	54.5	88	87	99
20	38x1	4	18	39x1	2	18	39	12	40	44.5	78	77	89
10	38x1	4	18	39x1	2	18	39	12	40	34.5	78	77	89

NLGD20 Dimensions



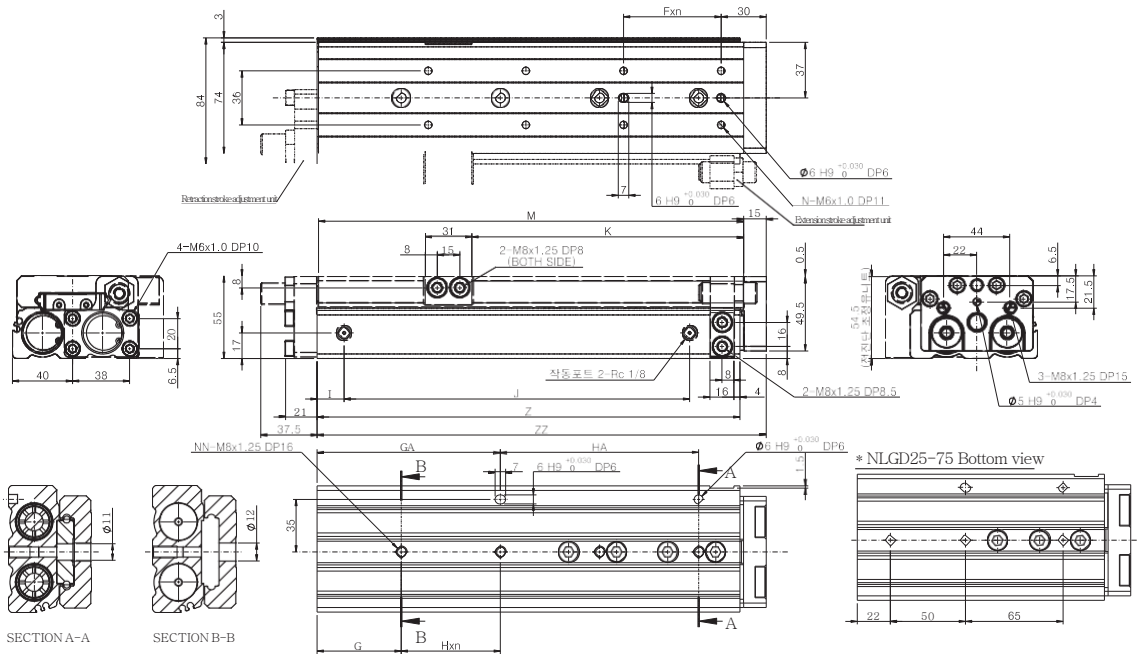
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	62x3	8	56	62x3	4	118	124	21	215	176.5	268	266.5	282
125	55x3	8	37	59x3	4	96	118	18	190	151.5	240	238.5	254
100	50x3	8	18	56x3	4	74	112	25	155	126.5	212	210.5	226
75	55x2	6	17	56x2	3	73	56	23	100	101.5	155	153.5	169
50	42x2	6	Note)	Note)	3	48	48	18	72	76.5	122	120.5	136
40	58x1	4	22	56x1	2	22	56	16	56	66.5	104	102.5	118
30	48x1	4	22	46x1	2	18	50	16	46	56.5	94	92.5	108
20	40x1	4	22	46x1	2	18	50	16	46	46.5	94	92.5	108
10	45x1	4	22	46x1	2	18	50	16	46	36.5	94	92.5	108

NLGD20L Dimensions (Reversible type)



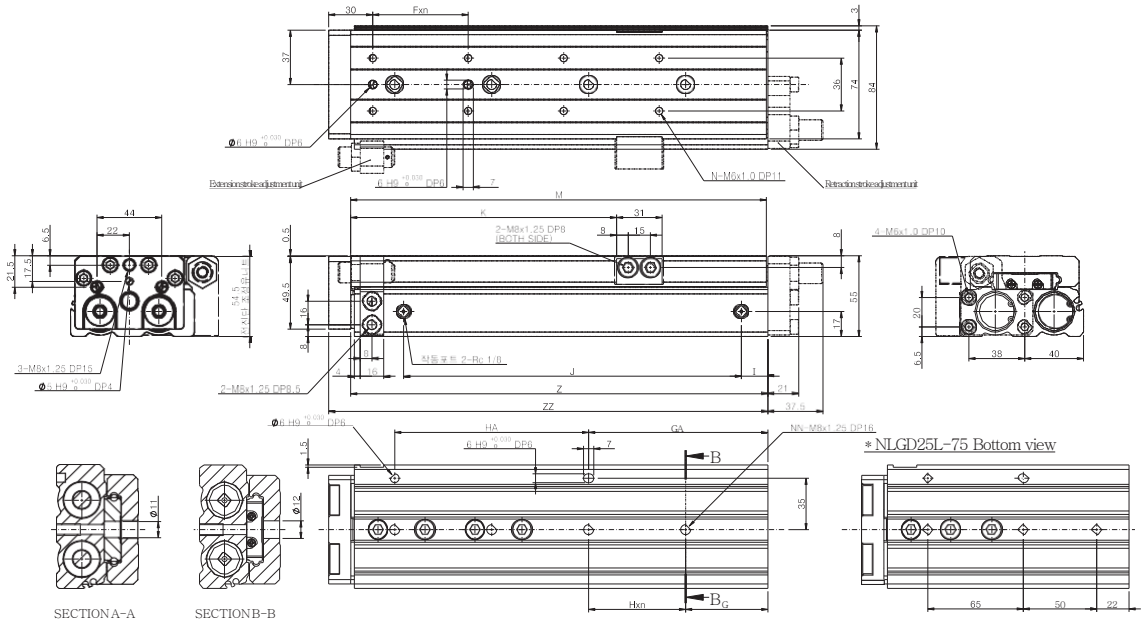
STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	62x3	8	56	62x3	4	118	124	21	215	176.5	268	266.5	282
125	55x3	8	37	59x3	4	96	118	18	190	151.5	240	238.5	254
100	50x3	8	18	56x3	4	74	112	25	155	126.5	212	210.5	226
75	55x2	6	17	56x2	3	73	56	23	100	101.5	155	153.5	169
50	42x2	6	Note)	Note)	3	48	48	18	72	76.5	122	120.5	136
40	58x1	4	22	56x1	2	22	56	16	56	66.5	104	102.5	118
30	48x1	4	22	46x1	2	18	50	16	46	56.5	94	92.5	108
20	40x1	4	22	46x1	2	18	50	16	46	46.5	94	92.5	108
10	45x1	4	22	46x1	2	18	50	16	46	36.5	94	92.5	108

NLGD25 Dimensions



STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	65x3	8	56	66x3	4	122	132	18	230	181	283	281.5	299
125	60x3	8	31	66x3	4	97	132	18	205	156	258	256.5	274
100	48x3	8	44	44x3	4	88	88	20	150	131	205	203.5	221
75	60x2	6	Note)	Note)	3	72	65	31	100	106	166	164.5	182
50	75x1	4	32	80x1	2	32	80	16	90	81	141	139.5	157
40	65x1	4	23	65x1	2	23	65	16	66	71	117	115.5	133
30	55x1	4	23	55x1	2	23	55	16	56	61	107	105.5	123
20	46x1	4	23	55x1	2	23	55	16	56	51	107	105.5	123
10	55x1	4	23	55x1	2	23	55	16	56	41	107	105.5	123

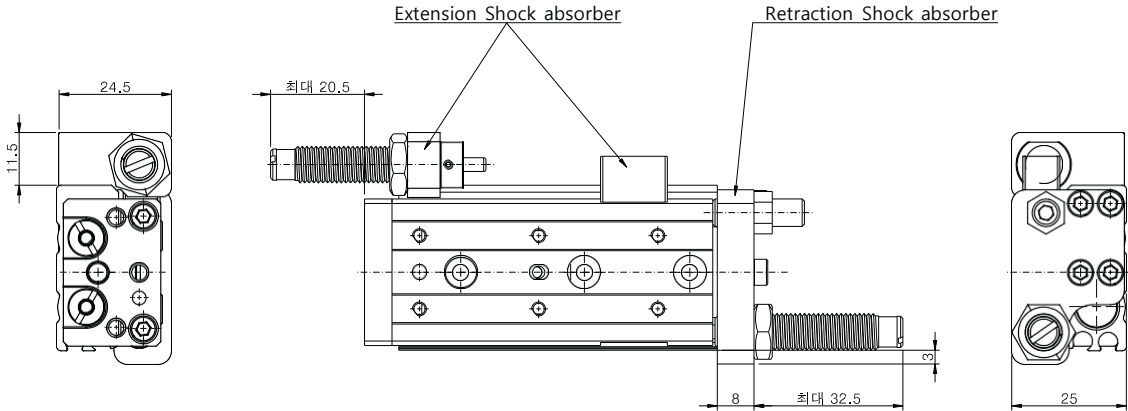
NLGD25L Dimensions (Reversible type)



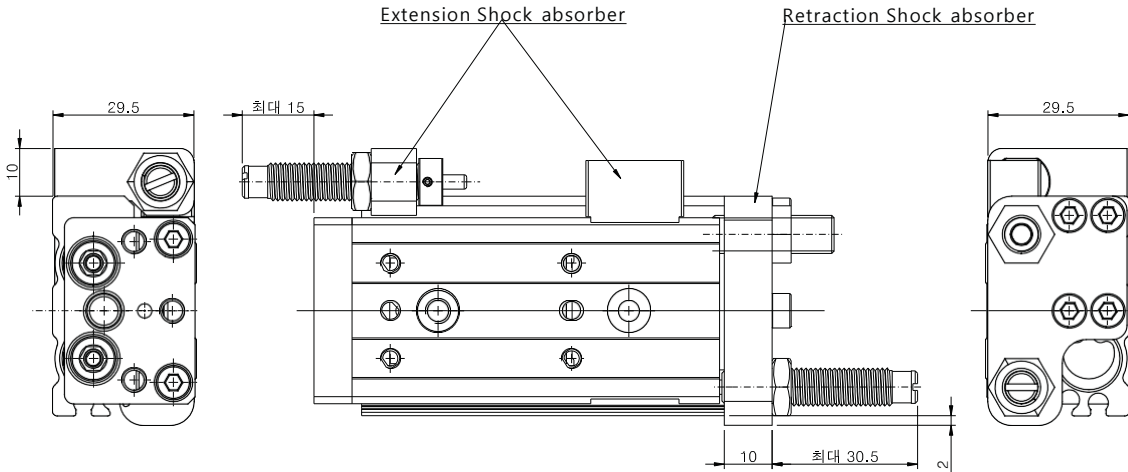
STROKE	F_{xn}	N	G	H_{xn}	NN	GA	HA	I	J	K	M	Z	ZZ
150	65x3	8	56	66x3	4	122	132	18	230	181	283	281.5	299
125	60x3	8	31	66x3	4	97	132	18	205	156	258	256.5	274
100	48x3	8	44	44x3	4	88	88	20	150	131	205	203.5	221
75	60x2	6	Note)	Note)	3	72	65	31	100	106	166	164.5	182
50	75x1	4	32	80x1	2	32	80	16	90	81	141	139.5	157
40	65x1	4	23	65x1	2	23	65	16	66	71	117	115.5	133
30	55x1	4	23	55x1	2	23	55	16	56	61	107	105.5	123
20	46x1	4	23	55x1	2	23	55	16	56	51	107	105.5	123
10	55x1	4	23	55x1	2	23	55	16	56	41	107	105.5	123

Shock Absorber Option Dimensions

NLGD08-**SF, SB, S

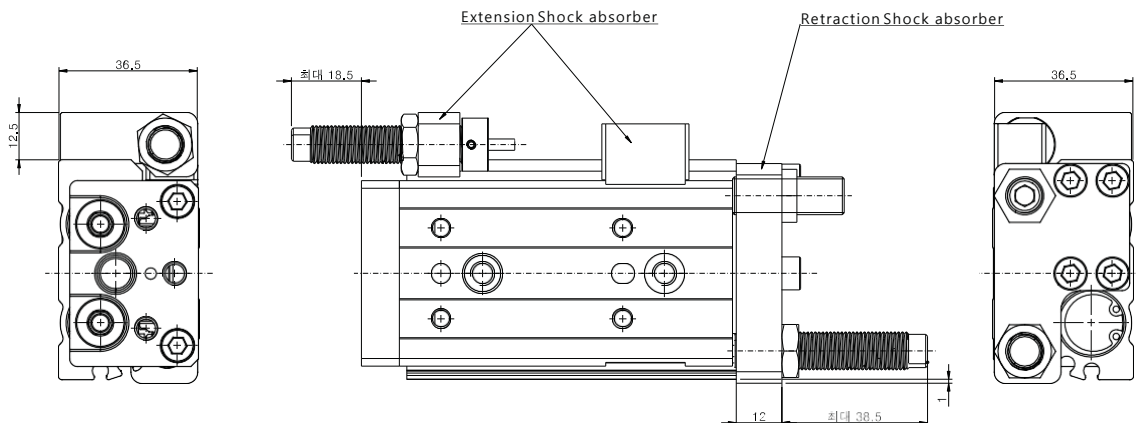


NLGD12-**SF, SB, S

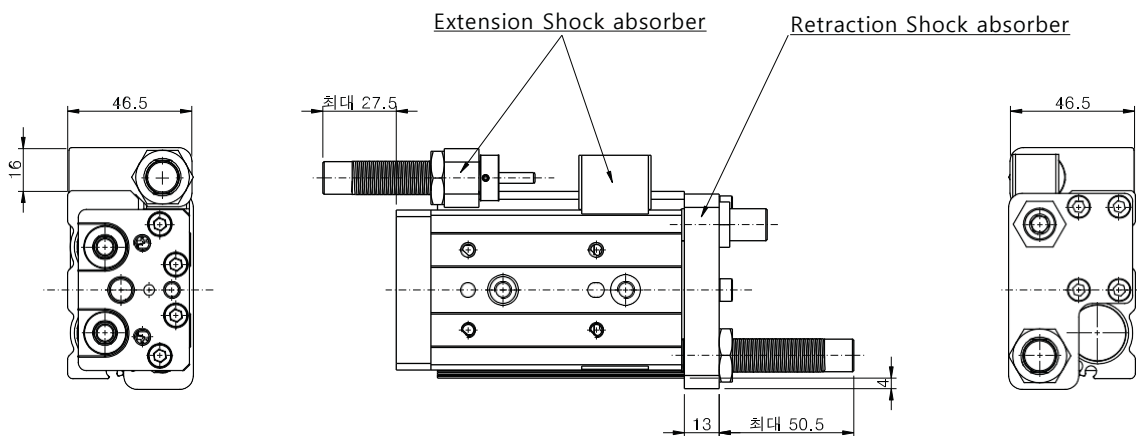


Shock Absorber Option Dimensions

NLGD16-**-SF, SB, S

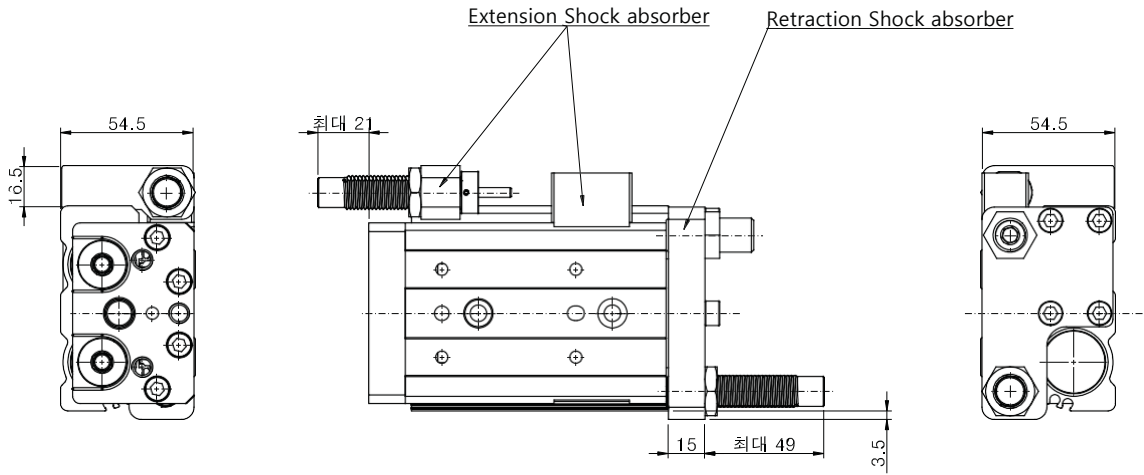


NLGD20-**-SF, SB, S



Shock Absorber Option Dimensions

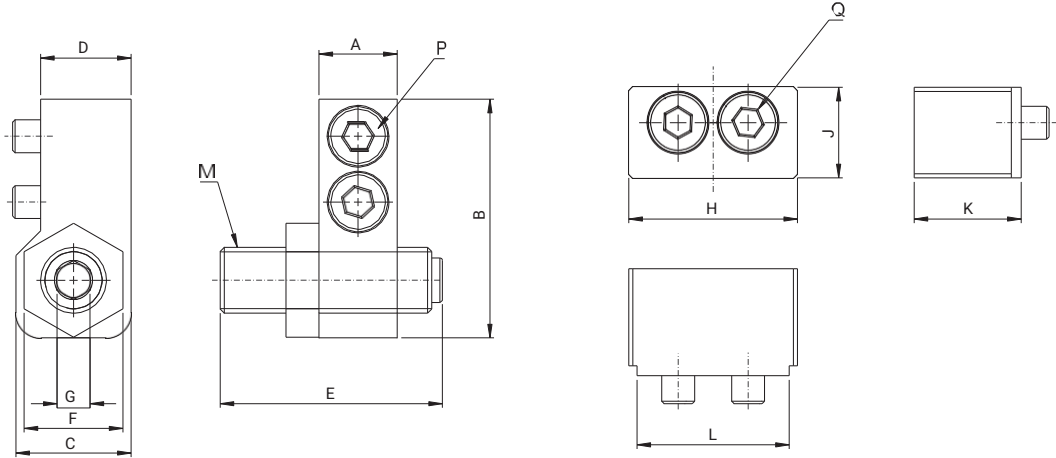
NLGD25-**-SF, SB, S



NLGD Series

Damper Stopper Option Dimensions

Extension stroke Adjuster Dimensions (RF)



BODY mounting parts

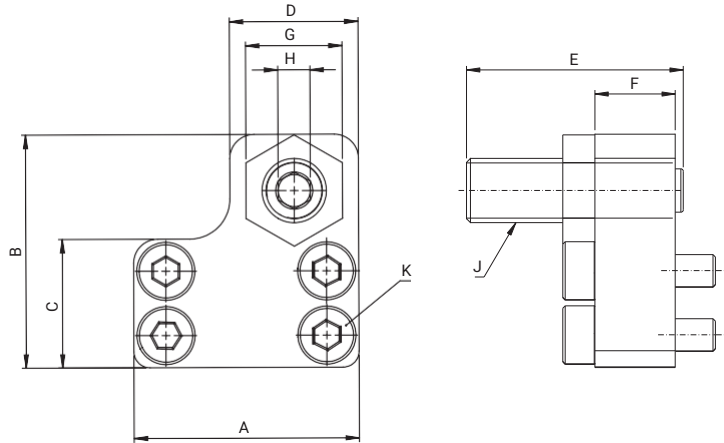
TABLE mounting parts

Bore Size	Model	Stroke Adjustment range (mm)	BODY mounting parts										TABLE mounting parts				
			A	B	C	D	E	F	G	M	P	H	J	K	L	Q	
NLGD06	NLGD06-RF	5	6	19	8	7	16.5	8	2.5	M5x0.8	M2.5x6L	12.5	7	8.3	-	M2.5x8L	
	NLGD06-RF15	15					26.5										
NLGD08	NLGD08-RF	5	7	22	9	7.5	21.5	8	3	M6x1.0	M3x8L	14.6	8	10	-	M3x10L	
	NLGD08-RF15	15					31.5										
	NLGD08-RF25	25					41.5										
NLGD12	NLGD12-RF	5	9.5	29	14	11	27	12	4	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L	
	NLGD12-RF15	15					37										
	NLGD12-RF25	25					47										
NLGD16	NLGD16-RF	5	11	36	17	13.5	31	14	5	M10x1.0	M5x12L	23	13.5	16	21	M5x15L	
	NLGD16-RF15	15					41										
	NLGD16-RF25	25					51										
NLGD20	NLGD20-RF	5	13	45	20	16	33	17	6	M12x1.75	M6x15L	27	17	22	25	M6x20L	
	NLGD20-RF15	15					43										
	NLGD20-RF25	25					53										
NLGD25	NLGD25-RF	5	16	54	22	18	38.5	19	6	M14x1.5	M8x18L	33	19	22	31	M8x20L	
	NLGD25-RF15	15					48.5										
	NLGD25-RF25	25					58.5										

High-precision slide table cylinder *NLGD* Series

Damper Stopper Option Dimensions

Retraction Stroke Adjuster Dimensions (RB)



Bore Size	Model	Stroke Adjuster range (mm)	A	B	C	D	E	F	G	H	K	J
NLGD06	NLGD06-RB	5	17.5	19	13	8	16.5	5.5	8	2.5	M2.5X8L	M5x0.8
	NLGD06-RB15	15					26.5					
NLGD08	NLGD08-RB	5	21	22	12	10	21.5	8	8	3	M3x12L	M6x1.0
	NLGD08-RB15	15					31.5					
	NLGD08-RB25	25					41.5					
NLGD12	NLGD12-RB	5	28	29	16	16	27	10	12	4	M4x15L	M8x1.0
	NLGD12-RB15	15					37					
	NLGD12-RB25	25					47					
NLGD16	NLGD16-RB	5	33.5	35.5	20	17	31	12	14	5	M5x18L	M10x1.0
	NLGD16-RB15	15					41					
	NLGD16-RB25	25					51					
NLGD20	NLGD20-RB	5	41	44.5	25	23	33	13	17	6	M5x20L	M12x1.75
	NLGD20-RB15	15					43					
	NLGD20-RB25	25					53					
NLGD25	NLGD25-RB	5	49	53.5	31	28	38.5	15	19	6	M6x25L	M14x1.5
	NLGD25-RB15	15					48.5					
	NLGD25-RB25	25					58.5					

HOW TO ORDER

NLGD **12** — **RF** **15**

1
2
3

1 Bore Size

06 : 6mm
 08 : 8mm
 12 : 12mm
 16 : 16mm
 20 : 20mm
 25 : 25mm

2 Stroke Adjuster

- Damper stopper
 RF : Extension stroke end
 RB : Retraction stroke end

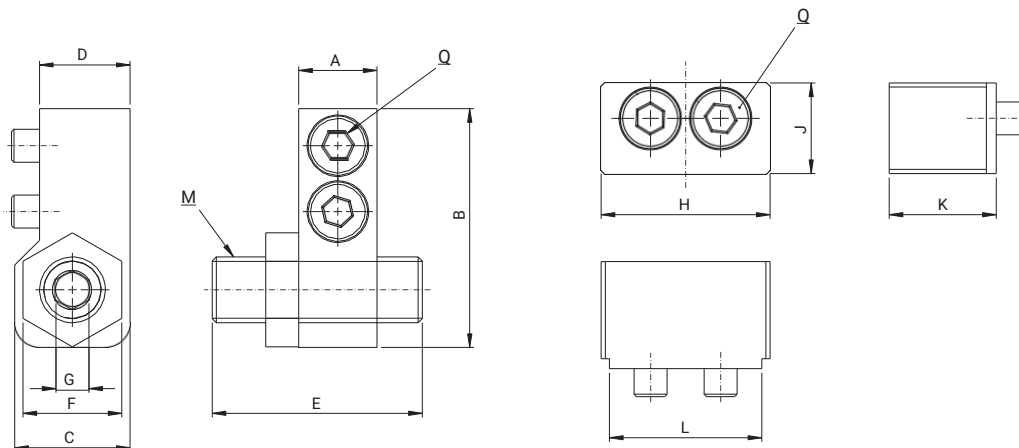
3 Stroke Adjustment Range

Blank : 5mm
 15 : 15mm
 25 : 25mm

NLGD Series

Metal Stopper Option Dimensions

Extension stroke Adjuster Dimensions (MF)



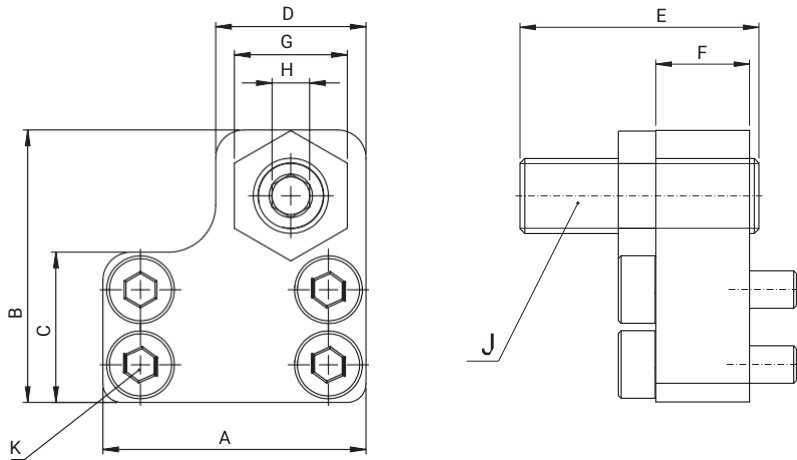
BODY mounting parts

TABLE mounting parts

Bore Size	Model	Stroke Adjustment range (mm)	BODY mounting parts									TABLE mounting parts				
			A	B	C	D	E	F	G	M	P	H	J	K	L	Q
NLGD06	NLGD06-MF	5	6	19	8	7	15.5	8	2.5	M5x0.8	M2.5x6L	12.5	7	8.3	-	M2.5x8L
	NLGD06-MF15	15					25.5									
NLGD08	NLGD08-MF	5	7	22	9	7.5	20	8	3	M6x1.0	M3x8L	14.6	8	10	-	M3x10L
	NLGD08-MF15	15					30									
	NLGD08-MF25	25					40									
NLGD12	NLGD12-MF	5	9.5	29	14	11	25.5	12	4	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L
	NLGD12-MF15	15					35.5									
	NLGD12-MF25	25					45.5									
NLGD16	NLGD16-MF	5	11	36	17	13.5	29.5	14	5	M10x1.0	M5x12L	23	13.5	16	21	M5x15L
	NLGD16-MF15	15					39.5									
	NLGD16-MF25	25					49.5									
NLGD20	NLGD20-MF	5	13	45	20	16	32.5	17	6	M12x1.75	M6x15L	27	17	22	25	M6x20L
	NLGD20-MF15	15					42.5									
	NLGD20-MF25	25					52.5									
NLGD25	NLGD25-MF	5	16	54	22	18	36	19	6	M14x1.5	M8x18L	33	19	22	31	M8x20L
	NLGD25-MF15	15					46									
	NLGD25-MF25	25					56									

Metal Stopper Option Dimensions

Retraction Stroke Adjuster Dimensions (MB)



Bore Size	Model	Stroke Adjuster range (mm)	A	B	C	D	E	F	G	H	K	J
NLGD06	NLGD06-MB	5	17.5	19	13	8	15.5	5.5	8	2.5	M2.5x8L	M5x0.8
	NLGD06-MB15	15					25.5					
NLGD08	NLGD08-MB	5	21	22	12	10	20	8	8	3	M3x12L	M6x1.0
	NLGD08-MB15	15					30					
	NLGD08-MB25	25					40					
NLGD12	NLGD12-MB	5	28	29	16	16	25.5	10	12	4	M4x15L	M8x1.0
	NLGD12-MB15	15					35.5					
	NLGD12-MB25	25					45.5					
NLGD16	NLGD16-MB	5	33.5	35.5	20	17	29.5	12	14	5	M5x18L	M10x1.0
	NLGD16-MB15	15					39.5					
	NLGD16-MB25	25					49.5					
NLGD20	NLGD20-MB	5	41	44.5	25	23	32.5	13	17	6	M5x20L	M12x1.75
	NLGD20-MB15	15					42.5					
	NLGD20-MB25	25					52.5					
NLGD25	NLGD25-MB	5	49	53.5	31	28	36	15	19	6	M6x25L	M14x1.5
	NLGD25-MB15	15					46					
	NLGD25-MB25	25					56					

HOW TO ORDER

NLGD **12** — **MF** **15**

1
2
3

1 Bore Size

06 : 6mm
 08 : 8mm
 12 : 12mm
 16 : 16mm
 20 : 20mm
 25 : 25mm

2 Stroke Adjuster

- Metal stopper
 MF : Extension stroke end
 MB : Retraction stroke end

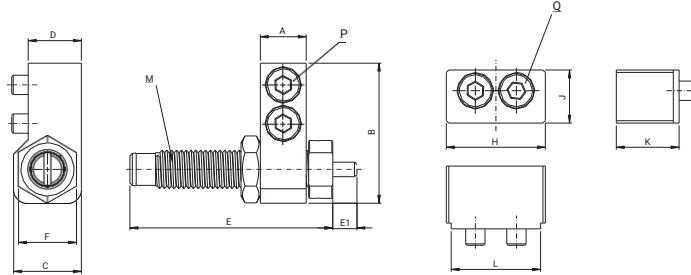
3 Stroke Adjustment Range

Blank : 5mm
 15 : 15mm
 25 : 25mm

NLGD Series

Shock absorber Option Dimensions

Extension Shock Absorber Option Dimensions (SF)

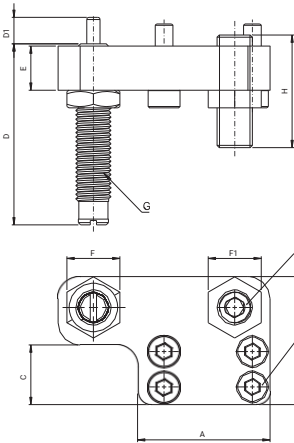


BODY mounting parts

TABLE mounting parts

Bore Size	Series	BODY mounting parts									TABLE mounting parts				
		A	B	C	D	E	E1	F	M	P	H	J	K	L	Q
NLGD08	NLGD08-SF	7	24.5	14	12.5	42	5	12	M8x1.0	M3x10L	14.6	8	10	-	M3x12L
NLGD12	NLGD12-SF	9.5	29	14	11	42	5	12	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L
NLGD16	NLGD16-SF	11	36	17	13.5	52	7	14	M10x1.0	M5x12L	23	13.5	16	21	M5x15L
NLGD20	NLGD20-SF	13	46	22	17.5	66	13.5	20	M14x1.5	M6x18L	27	17	22	25	M6x20L
NLGD25	NLGD25-SF	16	54	22	18	66	13.5	20	M14x1.5	M8x18L	33	19	22	31	M8x20L

Retraction Shock absorber Option Dimensions(SB)



Bore Size	Series	A	B	C	D	D1	E	F	F1	G	G1	H	J
NLGD08	NLGD08-SB	25	24.5	12	41	6	8	12	8	M8x1.0	M6x1.0	20	M3x12L
NLGD12	NLGD12-SB	30	29	13.5	41	6	10	12	12	M8x1.0	M8x1.0	25.5	M4x15L
NLGD16	NLGD16-SB	33.5	35.5	18	51	8	12	14	14	M10 x1.0	M10 x1.0	29.5	M5x18L
NLGD20	NLGD20-SB	41	46	20	64.5	15	13	20	17	M12 x1.25	M12 x1.25	32.5	M5x20L
NLGD25	NLGD25-SB	49	53.5	27	64.5	15	15	20	17	M14 x1.5	M12 x1.25	36	M6x25L

HOW TO ORDER

NLGD **12** — **SF**
1 2

- 1 Bore Size
 08 : 8mm
 12 : 12mm
 16 : 16mm
 20 : 20mm
 25 : 25mm

- 2 Stroke Adjuster
 - Shock absorber
 SF : Extension stroke end
 SB : Retraction stroke end

NLGD Series Precautions

Selection

⚠ Caution

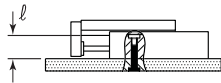
- Operate loads within the range of the operating limits.

Installation

⚠ Caution

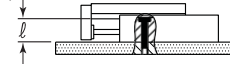
- Do not damage the mounting side of the body, table, or end plate.
- This can cause loss of parallelism in the mounting surfaces, vibration in the guide unit and increased operating resistance, etc.
- Do not apply excessive power and load when a workpiece is mounted.
- If the external force more than the allowable moment were applied, looseness of the guide unit of increased operating resistance could occur.
- When mounting the body, use screws with appropriate length and do not exceed the maximum tightening torque.
- Tightening with a torque above the limit could malfunction. Whereas, tightening insufficiently could result in misalignment or come to a drop.

1. Lateral Mounting (Body tapped)



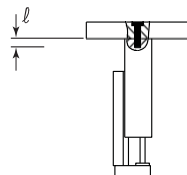
Model	Bolt	Maximum tightening torque (N.m [kg.cm])	Maximum screw-in depth (ℓ mm)
NLGD06	M4x0.7	2.1[21.4]	8
NLGD08	M4x0.7	2.1[21.4]	8
NLGD12	M5x0.8	4.4[44.9]	10
NLGD16	M6x1	7.4[75.5]	12
NLGD20	M6x1	7.4[75.5]	12
NLGD25	M6x1	18.0[184]	16

2. Lateral Mounting (Through hole)



Model	Bolt	Maximum tightening torque (N.m [kg.cm])	Maximum screw-in depth (ℓ mm)
NLGD06	M3x0.5	1.2[12.2]	10.5
NLGD08	M3x0.5	1.2[12.2]	12.5
NLGD12	M4x0.7	2.8[28.6]	16
NLGD16	M5x0.8	5.7[58.1]	21
NLGD20	M5x0.8	5.7[58.1]	26
NLGD25	M6x1	10[102]	32

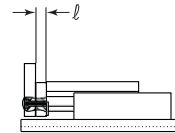
3. Vertical Mounting (Body tapped)



Model	Bolt	Maximum tightening torque (N.m [kg.cm])	Maximum screw-in depth (ℓ mm)
NLGD06	M2.4x0.45	0.5[5.1]	4
NLGD08	M4x0.7	0.9[9.2]	4
NLGD12	M4x0.7	2.1[21.4]	6
NLGD16	M5x0.8	4.4[44.9]	7
NLGD20	M5x0.8	4.4[44.9]	8
NLGD25	M6x1	7.4[75.5]	10

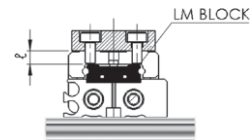
Installation

1. Front Mounting



Model	Bolt	Maximum tightening torque (N.m [kg.cm])	Maximum screw-in depth (ℓ mm)
NLGD06	M3x0.5	0.9[9.2]	5
NLGD08	M4x0.7	2.1[21.4]	6
NLGD12	M5x0.8	4.4[44.9]	8
NLGD16	M6x1	7.4[75.5]	10
NLGD20	M6x1	7.4[75.5]	13
NLGD25	M8x1.25	18.0[184]	15

2. Top Mounting



⚠ Caution

- To prevent bolts holding the workpiece from touching the LM block, use bolts that are 0.5 mm or shorter than the maximum screw-in depth.

Model	Bolt	Maximum tightening torque (N.m [kg.cm])	Maximum screw-in depth (ℓ mm)
NLGD06	M3x0.5	1.2[12.2]	4
NLGD08	M3x0.5	1.2[12.2]	4.8
NLGD12	M4x0.7	2.8[28.6]	6
NLGD16	M5x0.8	5.7[58.1]	7
NLGD20	M5x0.8	5.7[58.1]	9.5
NLGD25	M6x1	10[102]	11.5

Mounting damper stopper

Model	Maximum tightening torque (N.m [kg.cm])
NLGD06	3.0[30.6]
NLGD08	5.0[51.0]
NLGD12	12.5[128]
NLGD16	25.0[255]
NLGD20	43.0[439]
NLGD25	69.0[704]

⚠ Caution

- When adjusting stroke, keep wrench-like tools away from the table. It may cause misalignment or cause malfunction.

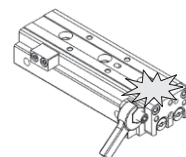


Table Deflection (Reference values)

Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

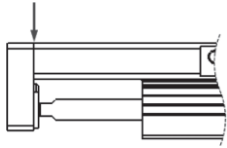


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

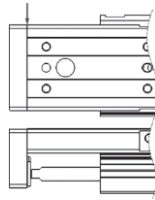
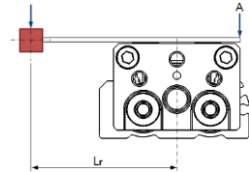
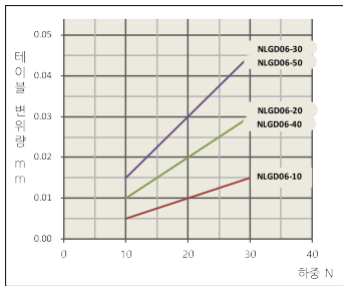


Table displacement due to roll moment load

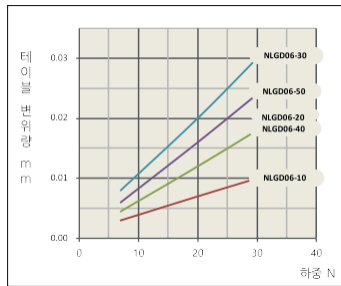
Table displacement of section A when loads are applied to the section F with the slide table retracted.



Ø 6

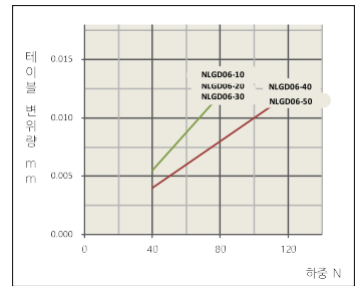


Ø 6

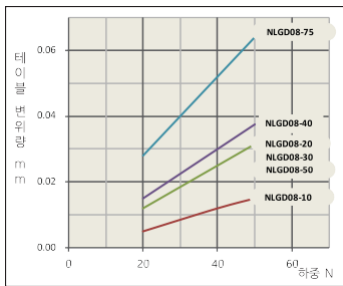


Ø 6

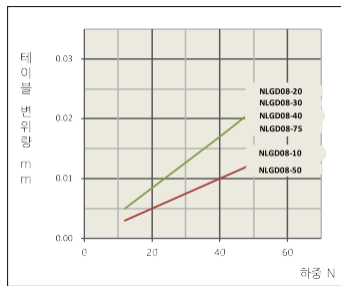
Lr = 40mm



Ø 8

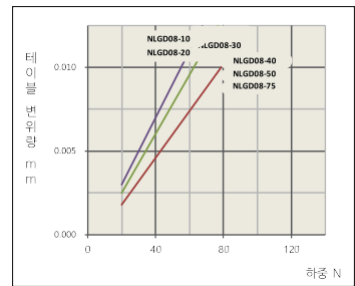


Ø 8

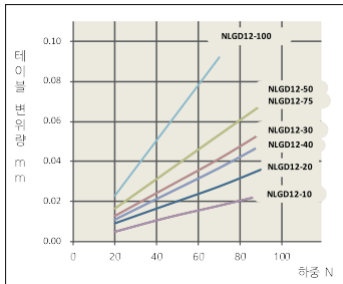


Ø 8

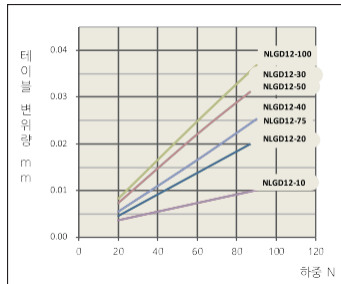
Lr = 70mm



Ø 12



Ø 12



Ø 12

Lr = 90mm

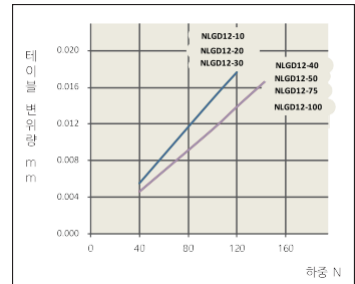


Table Deflection (reference values)

Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

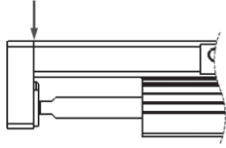


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

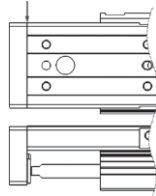
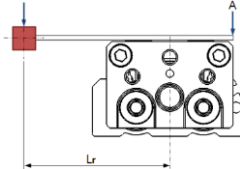
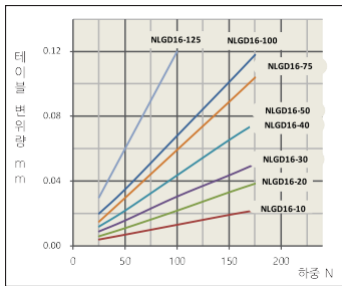


Table displacement due to roll moment load

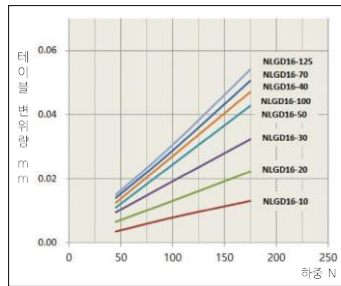
Table displacement of section A when loads are applied to the section F with the slide table retracted.



Ø 16

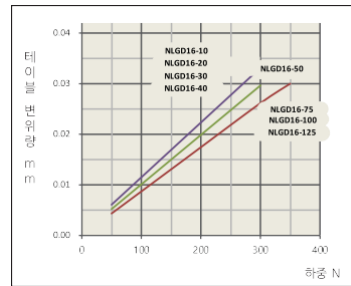


Ø 16

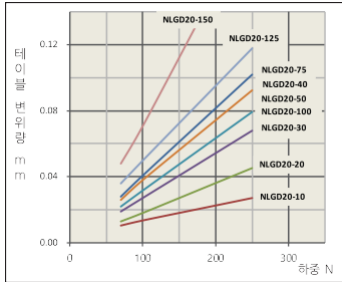


Ø 16

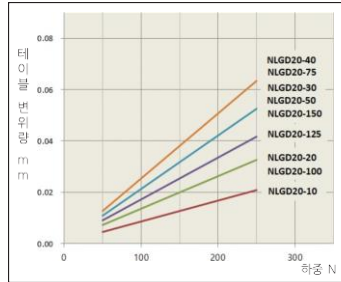
Lr = 120mm



Ø 20

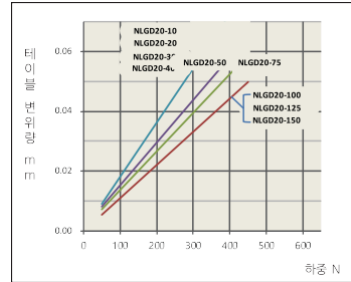


Ø 20

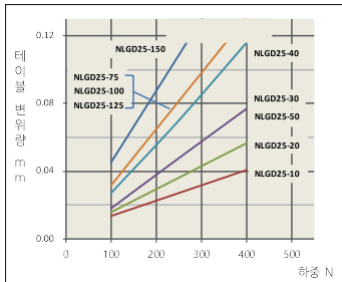


Ø 20

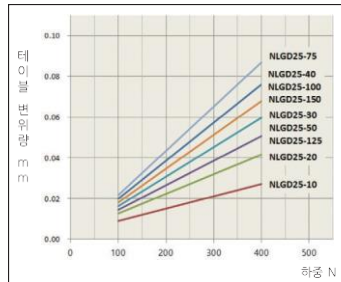
Lr = 160mm



Ø 25

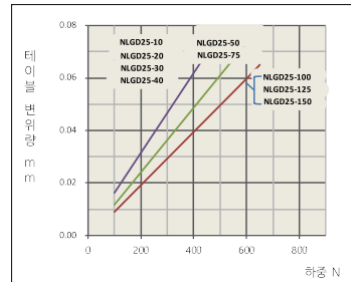


Ø 25



Ø 25

Lr = 200mm



Model Selection Step

Caution: Operate within the range of the operating limits.

When operated outside of operating limits, it may cause eccentric loads on guide, which leads to causing vibration on guide, inaccuracy, and shortened life.

1 Operating Conditions



Enumerate the operating conditions considering the mounting position and workpiece configuration.

- Model
- Cushion type
- Workpiece mounting position
- Mounting orientation
- Average speed V_a (mm/s)
- Load weight W (kg) : **FIG 1**
- Overhang L_n (mm) : **FIG 2**

- Cylinder: NLGD16-50
- Cushion: Urethane bumper
- Workpiece: Table mounting
- Mounting: Horizontal wall mounting
- Average speed: $V_a = 300$ [mm/s]
- Load weight: $W = 1$ [kg]
- $L_1 = 15$ mm
- $L_2 = 20$ mm
- $L_3 = 35$ mm

2 Kinetic Energy



I. Find the kinetic energy E (J) of the load.
II. Find the allowable kinetic energy E_a (J).
III. Assume that the kinetic energy of the load does NOT exceed the allowable kinetic energy.

$$E = \frac{1}{2} \times W \left(\frac{V}{1000} \right)^2$$

Collision speed $V = 1.4 \times V_a$ (mm/s)
 $E_a = K \times E_{max}$
 Workpiece mounting coefficient K : **FIG 3**
 Max. allowable kinetic energy E_{max} : **TABLE 1**
 Kinetic energy(E) \leq Allowable kinetic energy(E_a)

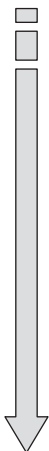
$$E = \frac{1}{2} \times 1 \times \left(\frac{420}{1000} \right)^2 = 0.088$$

$$V = 1.4 \times 300 = 420$$

$$E_a = 1 \times 0.11 = 0.11$$

Can be used based on
 $E = 0.088 \leq E_a = 0.11$

3 Load Factor



3-1 Load factor of load weight
Find the allowable load weight W_a (kg). Find the load factor of the load weight α_1 .

$W_a = K \times \beta \times W_{max}$
 Workpiece mounting coefficient K : **FIG 3**
 Allowable load weight coefficient β : **GRAPH 1**
 Max. allowable load weight W_{max} : **TABLE 2**
 $\alpha_1 = W / W_a$

$W_a = 1 \times 1 \times 4.5 = 4.5$
 $K = 1$
 $\beta = 1$
 $W_{max} = 4.5$
 $\alpha_1 = 1 / 4.5 = 0.222$

3-2 Find the static moment M (N.m). Find the allowable static moment M_a (N.m). Find the load factor α_2 of the static moment.

$M = W \times 9.8 (L_n + A_n) / 1000$
 Correction value of moment center position distance A_n : **TABLE 3**
 $M_a = K \times \gamma \times M_{max}$
 Workpiece mounting coefficient K : **FIG 3**
 Allowable moment coefficient γ : **GRAPH 2**
 Max. allowable moment M_{max} : **TABLE 4**
 $\alpha_2 = M / M_a$

Yawing (M_y) = $1 \times 9.8 (15 + 30) / 1000 = 0.44$
 $L_1 = 15, A_3 = 30$
 $M_{ay} = 1 \times 1 \times 20 = 20$
 $M_{y_{max}} = 20$ $K = 1, \gamma = 1$
 $\alpha_2 = 0.44 / 20 = 0.022$
 Rolling (M_r) = $1 \times 9.8 (35 + 10.5) / 1000 = 0.446$
 $L_3 = 35, A_6 = 10.5$
 $M_{ar} = 41$
 $\alpha_2 = 0.446 / 41 = 0.011$

3-3 Find the dynamic moment Me (N.m). Find the allowable dynamic moment Me_a (N.m). Find the load factor α_3 of the dynamic moment.

$Me = 1/3 \times W_e \times 9.8 (L_n + A_n) / 1000$
 Collision equivalent to impact $W_e = \delta \times W \times V$
 δ : Bumper coefficient
 - Urethane bumper = 0.04
 - Shock absorber = 0.01
 - Metal stopper = 0.16
 Correction value of moment center position distance A_n : **TABLE 3**
 $Me_a = K \times \gamma \times M_{max}$
 Workpiece mounting coefficient K : **FIG 3**
 Allowable moment coefficient γ : **GRAPH 2**
 Max. allowable moment M_{max} : **TABLE 4**
 $\alpha_3 = Me / Me_a$

Pitching
 $Me_p = 1/3 \times 16.8 \times 9.8 \times (35 + 10.5) / 1000 = 2.50$
 $W_e = 0.04 \times 1 \times 420 = 16.8$
 $L_3 = 35, A_2 = 10.5$
 $Me_{ap} = 1 \times 0.7 \times 20 = 14$
 $K = 1, \gamma = 0.7, M_{p_{max}} = 20$
 $\alpha_3 = 2.50 / 14 = 0.18$
 Yawing
 $Me_y = 1/3 \times 16.8 \times 9.8 \times (20 + 24.5) / 1000 = 2.44$
 $W_e = 16.8, L_2 = 20, A_4 = 24.5$
 $Me_{ay} = 20$ (same value as Me_{ap})
 $\alpha_3 = 2.44 / 20 = 0.12$

4 Sum of Load Factors

It is possible to use if the sum of load factors does not exceed 1.

$$\sum \alpha_n = \alpha_1 + \alpha_2 + \dots + \alpha_n \leq 1$$

$$\sum \alpha_n = \alpha_1 + \alpha_2 + \alpha'_2 + \alpha_3 + \alpha'_3 = 0.222 + 0.022 + 0.011 + 0.18 + 0.12 = 0.56 \leq 1$$

And it is possible to use.

High-precision slide table cylinder *NLGD* Series

FIG 1 Load Weight W (kg)

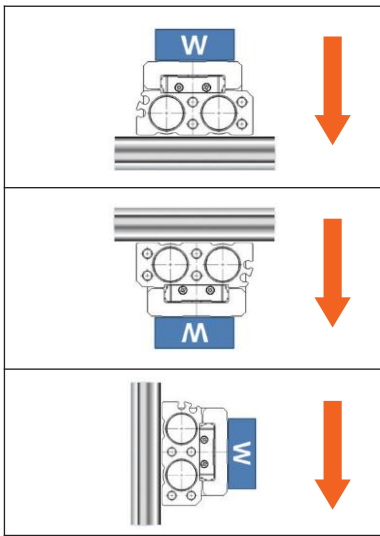


FIG 3 Workpiece Mounting Coefficient: K

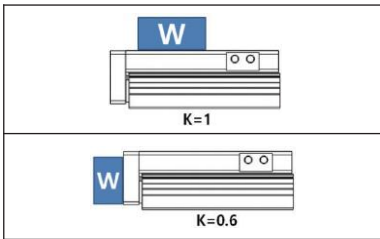
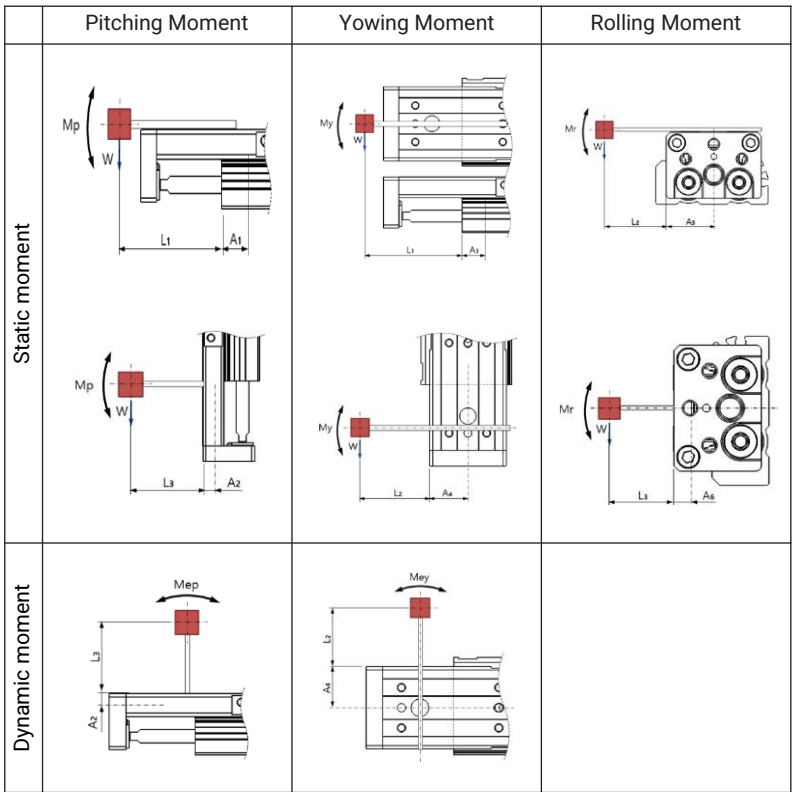


FIG 2 Overhang: L_N (mm)
Correction value of Moment Center Position Distance: A_n (mm)



Note) Static moment: Moment generated by gravity.
Dynamic moment: Moment generated by impact when colliding with stopper.

TABLE 1 Allowable Kinetic Energy: E_{max} (J)

Model	Allowable kinetic energy		
	Urethane Bumper	Shock absorber	Metal stopper
NLGD06	0.014	-	0.007
NLGD08	0.02	0.04	0.01
NLGD12	0.05	0.1	0.025
NLGD16	0.1	0.2	0.05
NLGD20	0.15	0.3	0.075
NLGD25	0.22	0.44	0.12

TABLE 2 Max. Allowable Load Weight: W_{max} (kg)

Model	W_{max}
NLGD06	0.6
NLGD08	1
NLGD12	2.2
NLGD16	4.5
NLGD20	6.6
NLGD25	9.9

GRAPH 1 Allowable Load Weight Coefficient: β

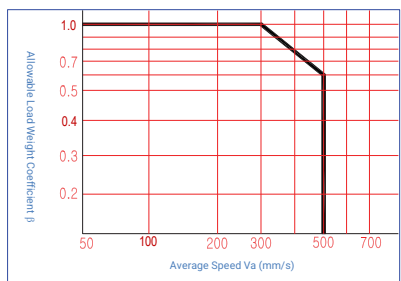
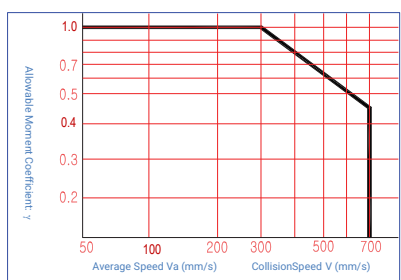


TABLE 3 Correction Value of Moment Center Position Distance: A_n (mm)

Model	Correction Value of Moment Center Position Distance: A_n (mm)											
	A1, A3										A2, A6	A4, A5
	Stroke (mm)											
	10	20	30	40	50	75	100	125	150			
NLGD06	14.5	14.5	14.5	18.5	18.5	-	-	-	-	6	13.5	
NLGD08	16.5	16.5	18.5	20.5	28	28.5	-	-	-	7	16	
NLGD12	21	21	21	25	25	34	34	-	-	9	19.5	
NLGD16	27	27	27	27	30	33	42.5	42.5	-	10.5	24.5	
NLGD20	29.5	29.5	29.5	29.5	33.5	37.5	53.5	55	56.5	14	30	
NLGD25	35.5	35.5	35.5	35.5	43	43	50	64	64	16.5	37	

GRAPH 2 Allowable Moment Coefficient: γ



Note) Use the average speed for static moment calculation; the collision speed for dynamic moment calculation.

NLGD Series

TABLE 4 Max. Allowable Moment: Mmax (N·m)

Model	Pitch / Yaw Moment: M _{pmax} /M _{ymax}									Roll moment: M _{rmax}								
	Stroke (mm)									Stroke (mm)								
	10	20	30	40	50	75	100	125	150	10	20	30	40	50	75	100	125	150
NLGD06	1.4	1.4	1.4	2.8	2.8	-	-	-	-	3.5	3.5	3.5	5.1	5.1	-	-	-	-
NLGD08	2	2	2.8	3.7	7.9	7.9	-	-	-	5.1	5.1	6	6.6	7.4	7.4	-	-	-
NLGD12	5.1	5.1	5.1	7.8	7.8	16	16	-	-	12	12	12	14	14	15	15	-	-
NLGD16	15	15	15	15	20	26	47	47	-	35	35	35	35	41	46	46	46	-
NLGD20	21	21	21	21	30	39	92	92	82	51	51	51	51	62	72	82	82	82
NLGD25	35	35	35	35	57	57	85	153	153	89	89	89	89	121	121	142	142	142

Symbol

Symbol	Definition	Symbol	Definition	Symbol	Definition	Symbol	Definition
A _n (n = 1~6)	Correction value of moment center position distance (mm)	M _a (M _{ap} , M _{ay} , M _{ar})	Allowable static moment (Pitch, Yaw, Roll) (N·m)	W	Load weight (kg)	γ	Allowable moment coefficient
E	Kinetic energy (J)	M _e (M _{ep} , M _{ey})	Dynamic moment (Pitch, Yaw) (N·m)	W _a	Allowable load weight (kg)	δ	Bumper coefficient
E _a	Allowable kinetic energy (J)	M _{ea} (M _{epa} , M _{eya})	Allowable dynamic moment (Pitch, Yaw) (N·m)	W _e	Weight equivalent to impact (kg)	K	Workpiece mounting coefficient
E _{max}	Max. allowable kinetic energy (J)	M _{max} (M _{pmax} , M _{ymax} , M _{rmax})	Max. allowable moment (Pitch, Yaw, Roll) (N·m)	W _{max}	Max. allowable load weight (kg)		
L _n (n = 1 ~ 3)	Over hang (mm)	V	Collision speed (mm/s)	α	Load factor		

CR(CV)-NLGD Series

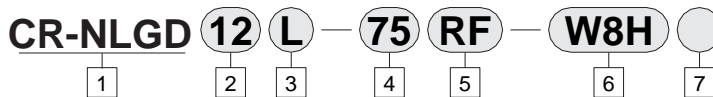
CR(CV)-NLGD (High-precision slide table cylinder)

Bore size : Ø6, Ø8, Ø12, Ø16, Ø20, Ø25



- Prevents particle generation in clean room using special grease for Clean series
- Anti-corrosive table, LM block with electroless nickel-plated treatment
- Secondary battery cell specifications available
- Compatible with competitors' design and dimensions

HOW TO ORDER



1 Clean Series

CR : Relief Port Type
CV : Vacuum Suction Type

2 Bore Size

06 : 6mm
08 : 8mm
12 : 12mm
16 : 16mm
20 : 20mm
25 : 25mm

3 Mounting Type

Blank : Standard
L : Reversible

4 Bore Size - Stroke

Bore size	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
6	•	•	•	•	•				
8	•	•	•	•	•	•			
12	•	•	•	•	•	•	•		
16	•	•	•	•	•	•	•	•	
20	•	•	•	•	•	•	•	•	•
25	•	•	•	•	•	•	•	•	•

4 Adjuster Options

1) Damper Stopper

RF : Extension stroke end
RB : Retraction stroke end
R : Both ends (RF+RB)

2) Shock Absorber

SF : Extension stroke end
SB : Retraction stroke end
S : Both ends (SF+SB)

2) Metal Stopper

MF : Extension stroke end
MB : Retraction stroke end
M : Both ends (MF+MB)

*Shock absorber is not available for CR(CV)-NLGD06 series.

5 Auto Switches

Blank : No auto switch

W8H : Reed switch (Horizontal)

W8V : Reed switch (Vertical)

W9H : Solid state switch (Horizontal)

W9V : Solid state switch (Vertical)

W9HN : Solid state switch (NPN), 3-wire

W9HP : Solid state switch (PNP), 3-wire

W10V : Solid state switch (Vertical)

W20H : Solid state switch (Horizontal), 2-color indication

*For lead wire length, add L by the end of auto switch part number for 3m long lead wire. Unless otherwise specified, lead wire length is 1m.

(i.e. W8HL, W9VL)

6 Number of Auto Switches

Blank : 2 pcs

S : 1 pc

N : N pcs

CR(CV)-NLGD Series



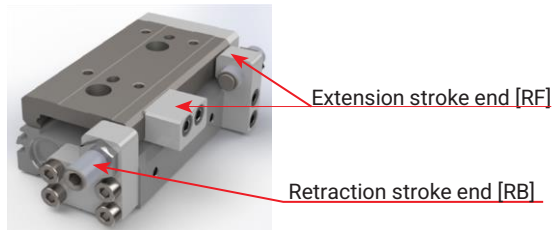
Specifications

Bore size (Ømm)	6, 8, 12, 16, 20, 25
Fluid	Air
Operation	Double acting
Operating Pressure	0.15~0.7Mpa (1.5~7kgf/cm ²)
Proof Pressure	1.05Mpa (10.7kgf/cm ²)
Ambient and fluid temperature	-10~60°C
Piston Speed	50~500mm/s (With metal stopper: 50 - 200mm/s)
Lubrication	Non-lube
Grease	Teflon grease
Auto Switch	Reed switch : DC(24V)/AC(110V) Solid state switch : DC(24V)
Stroke Length Tolerance	0 - +1mm
Adjuster Options	Damper stopper / Metal stopper Shock-absorber
Cleanliness Class : KS I ISO 14644-1	CR : 3.5 CV : 3

Stroke Adjustment Unit

- Extension stroke end [RF]
- Retraction stroke end [RB]
- Both ends [R]

*Stroke adjustment range : 0~5mm



Standard stroke

(Unit : mm)

Series	Standard stroke								
	10	20	30	40	50	75	100	125	150
CR(CV)-NLGD06	○	○	○	○	○	-	-	-	-
CR(CV)-NLGD08	○	○	○	○	○	○	-	-	-
CR(CV)-NLGD12	○	○	○	○	○	○	○	-	-
CR(CV)-NLGD16	○	○	○	○	○	○	○	○	-
CR(CV)-NLGD20	○	○	○	○	○	○	○	○	○

CR(CV)-NLGD (High-precision slide table cylinder) Series

Weight (Unit : g)									
Series	Standard stroke								
	10	20	30	40	50	75	100	125	150
CR(CV)-NLGD06	118	138	158	198	218	-	-	-	-
CR(CV)-NLGD08	169	199	239	279	344	414	-	-	-
CR(CV)-NLGD12	385	390	430	500	530	695	785	-	-
CR(CV)-NLGD16	675	680	740	805	900	1060	1320	1470	-
CR(CV)-NLGD20	1242	1242	1242	1337	1537	1877	2467	2757	3047
CR(CV)-NLGD25	1950	1950	1950	2150	2595	2940	3620	4460	4905

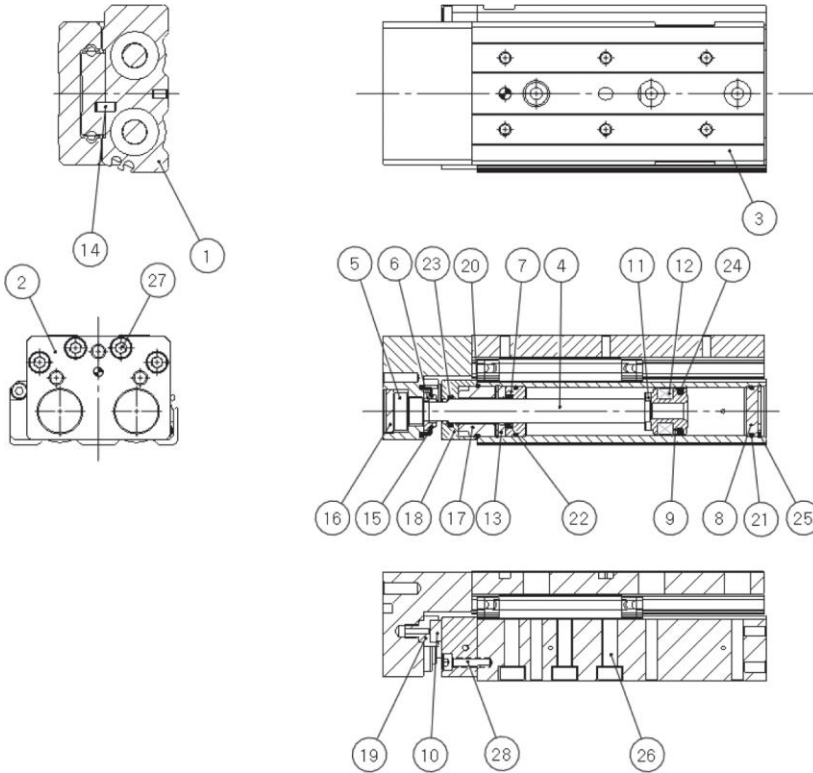
Additional weight of adjuster options					
Damper stopper		Metal stopper		Shock absorber	
Extension	Retraction	Extension	Retraction	Extension	Retraction
6	9	11	9	-	-
10	15	23	15	25	35
25	35	35	35	45	40
45	55	60	55	80	93
80	90	115	90	152	112
130	150	180	150	230	265

Theoretical output (Unit:N)									
Series	Rod size (mm)	Operating direction	Piston Area (mm ²)	Operating pressure (Mpa)					
				0.2	0.3	0.4	0.5	0.6	0.7
CR(CV)-NLGD06	3	OUT	57	11	17	23	29	34	40
		IN	42	8	13	17	21	25	29
CR(CV)-NLGD08	4	OUT	101	20	30	40	51	61	71
		IN	75	15	23	30	38	45	53
CR(CV)-NLGD12	6	OUT	226	45	68	90	113	136	158
		IN	170	34	51	68	85	102	119
CR(CV)-NLGD16	8	OUT	402	80	121	161	201	241	281
		IN	302	60	91	121	151	181	211
CR(CV)-NLGD20	10	OUT	628	126	188	251	314	377	440
		IN	471	94	141	188	236	283	330
CR(CV)-NLPD25	12	OUT	982	196	295	393	491	589	687
		IN	756	151	227	302	378	454	529

* Theoretical output (N) = Pressure [Mpa] × Piston area (mm²)

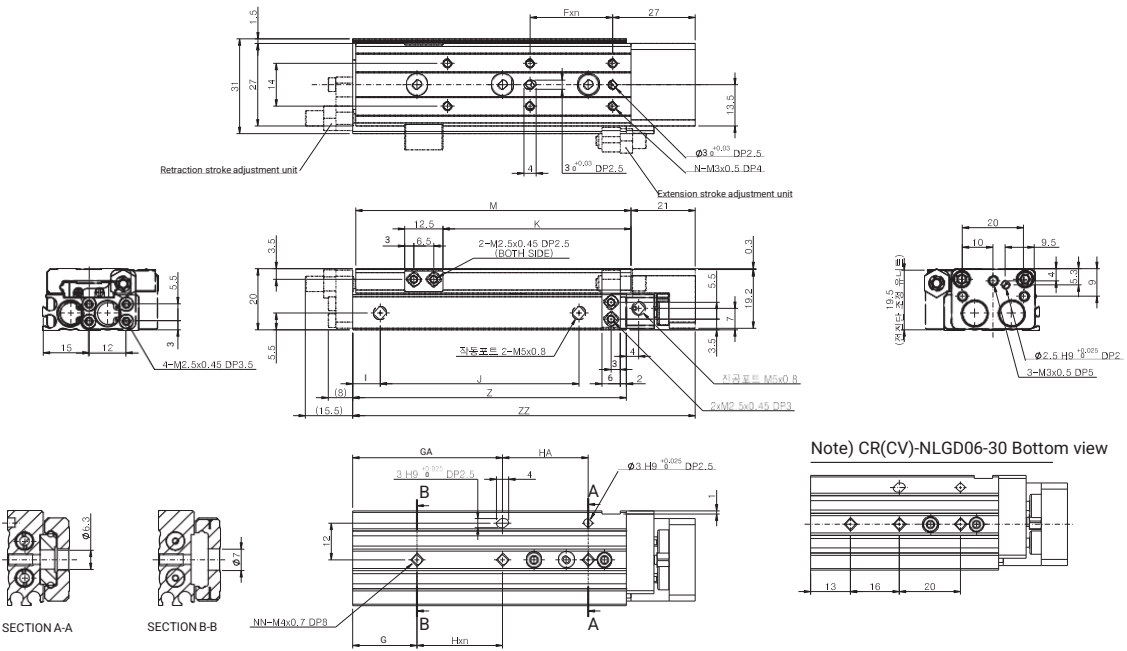
CR(CV)-NLGD Series

Structure



NO.	Description	Material	Remarks	NO.	Description	Material	Remarks
1	BODY	Aluminum alloy		16	DUST PLATE	Silicone	
2	CLEAN PLATE	Aluminum alloy		17	CLEAN BUSH	Stainless steel	
3	TABLE	Alloy steel	Heat treated / electroless nickel plated	18	CLEAN COVER	Aluminum alloy	
4	PISTON ROD	Stainless steel		19	CLEAN HOLDER	Stainless steel	
5	RETAINER	Stainless steel		20	O-RING	NBR	
6	CLEAN RETAINER WASHER	Stainless steel		21	O-RING	NBR	
7	ROD COVER	Aluminum alloy		22	ROD PACKING	Urethane	
8	HEAD COVER	Aluminum alloy		23	ROD PACKING	NBR	
9	PISTON	Aluminum alloy		24	PISTON PACKING	NBR	
10	HOLDER BUMER	Urethane		25	SNAP RING	Spring steel	
11	BUMPER	Urethane		26	HEXAGON BOLT	Carbon steel	
12	MAGNET	Steel		27	HEXAGON BOLT	Carbon steel	
13	COVER SPACER	Aluminum alloy		28	HEXAGON BOLT	Carbon steel	
14	DOWEL PIN	Bearing steel					
15	DUST COVER	Silicone					

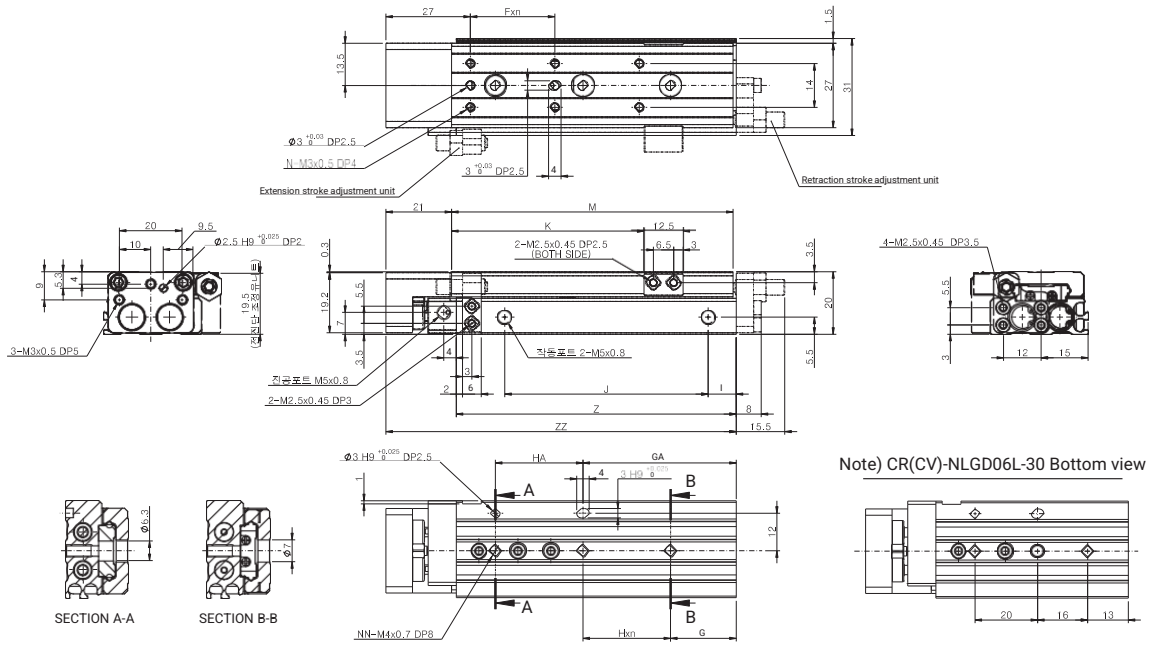
CR(CV)-NLGD06 Dimensions



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
50	27x2	6	21	28x2	3	49	28	9	65	61.5	90	89.5	112
40	26x2	6	11	28x2	3	39	28	16	48	51.5	80	79.5	102
30	21x2	6	Note)	Note)	3	29	20	9	37	41.5	62	61.5	84
20	25x1	4	13	26x1	2	13	26	9	27	31.5	52	51.5	74
10	22x1	4	6	23x1	2	13	16	9	17	21.5	42	41.5	64

CR(CV)-NLGD Series

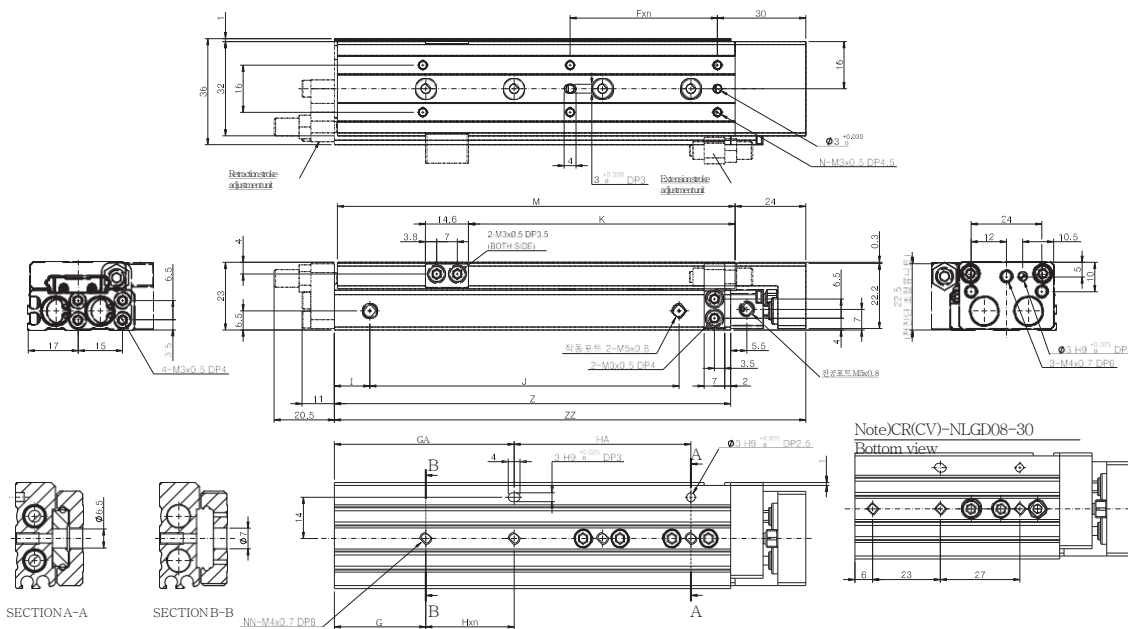
CR(CV)-NLGD06L Dimensions (Reversible type)



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
50	27x2	6	21	28x2	3	49	28	9	65	61.5	90	89.5	112
40	26x2	6	11	28x2	3	39	28	16	48	51.5	80	79.5	102
30	21x2	6	Note)	Note)	3	29	20	9	37	41.5	62	61.5	84
20	25x1	4	13	26x1	2	13	26	9	27	31.5	52	51.5	74
10	22x1	4	6	23x1	2	13	16	9	17	21.5	42	41.5	64

CR(CV)-NLGD (High-precision slide table cylinder) Series

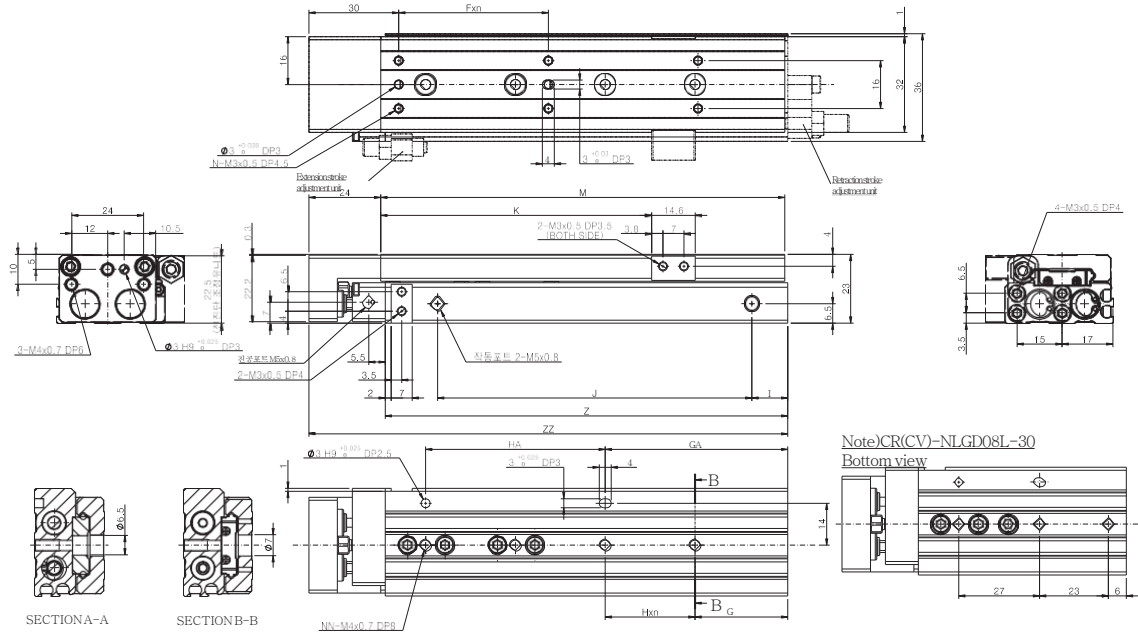
CR(CV)-NLGD08 Dimensions



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
75	50x2	6	31	30x3	4	61	60	12	105	90.5	135	134.5	160
50	46x2	6	8	29x3	4	37	58	13	78	65.5	109	108.5	134
40	32x2	6	8	31x2	3	39	31	14	52	55.5	84	83.5	109
30	26x2	6	Note)	Note)	3	29	27	12	40	45.5	70	69.5	95
20	25x1	4	14	28x1	2	14	28	10	28	35.5	56	55.5	81
10	25x1	4	7	25x1	2	13	19	11	17	25.5	46	45.5	71

CR(CV)-NLGD Series

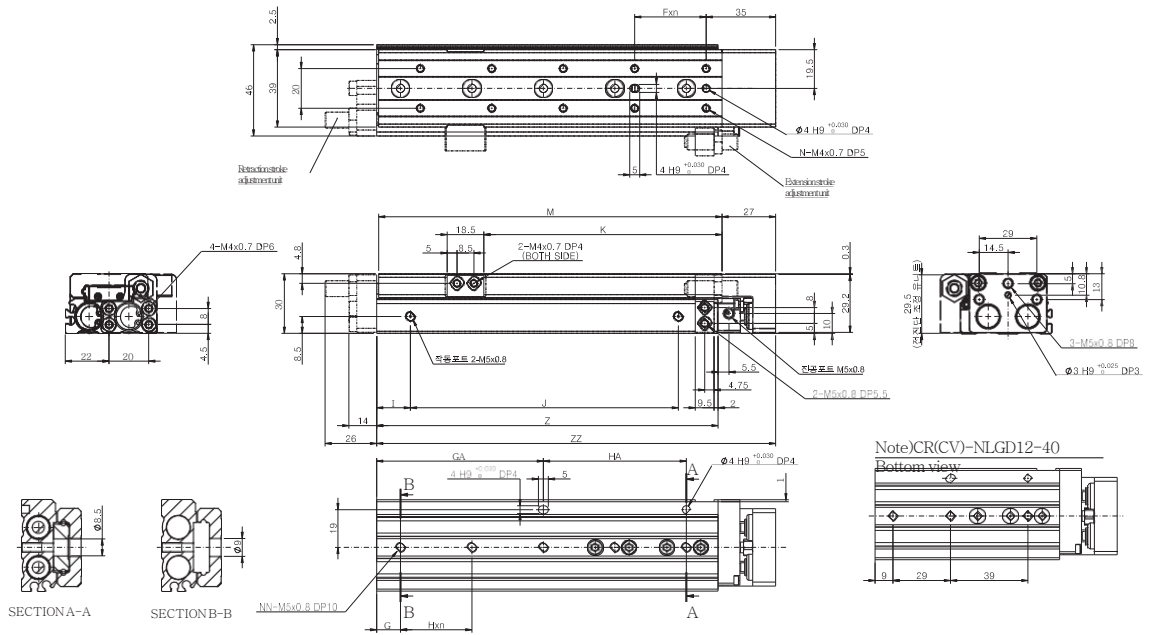
CR(CV)-NLGD08L Dimensions (Reversible type)



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
75	50x2	6	31	30x3	4	61	60	12	105	90.5	135	134.5	160
50	46x2	6	8	29x3	4	37	58	13	78	65.5	109	108.5	134
40	32x2	6	8	31x2	3	39	31	14	52	55.5	84	83.5	109
30	26x2	6	Note)	Note)	3	29	27	12	40	45.5	70	69.5	95
20	25x1	4	14	28x1	2	14	28	10	28	35.5	56	55.5	81
10	25x1	4	7	25x1	2	13	19	11	17	25.5	46	45.5	71

CR(CV)-NLGD (High-precision slide table cylinder) Series

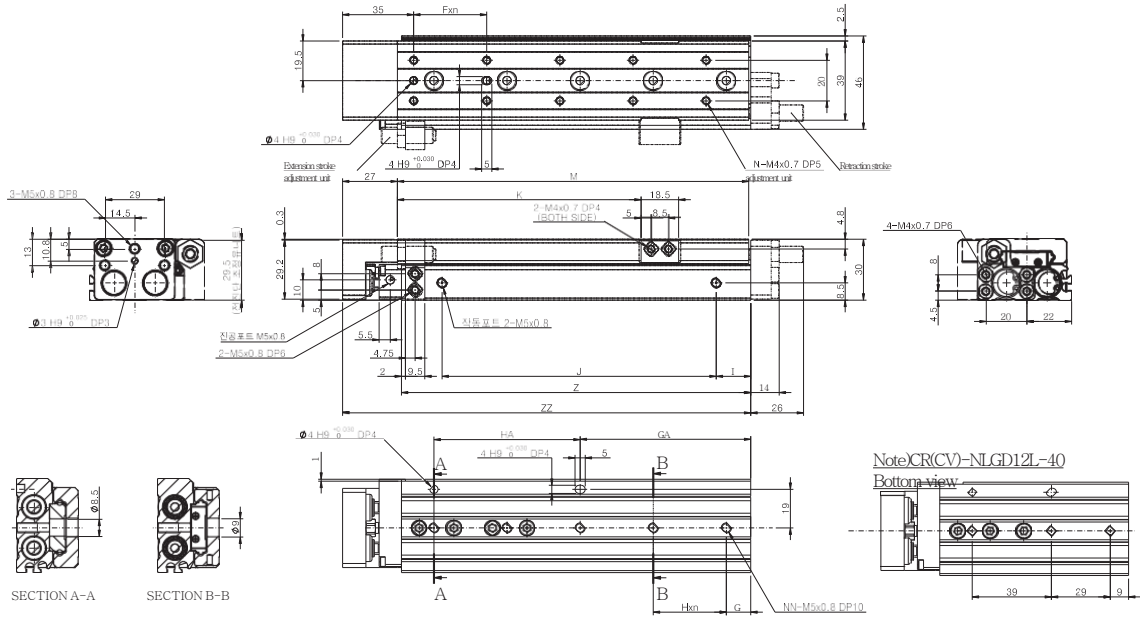
CR(CV)-NLGD12 Dimensions



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
100	36x4	10	12	36x4	5	84	72	17	135	120	173	172	201
75	36x3	8	23	36x3	4	59	72	17	110	95	148	147	176
50	34x2	6	9	39x2	3	48	39	13	70	70	104	103	132
40	34x2	6	Note)	Note)	3	38	39	15	58	60	94	93	122
30	38x1	4	20	40x1	2	20	40	14	42	50	77	76	105
20	28x1	4	18	32x1	2	18	32	12	34	40	67	66	95
10	28x1	4	18	32x1	2	18	32	12	34	30	67	66	95

CR(CV)-NLGD Series

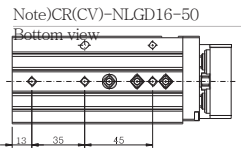
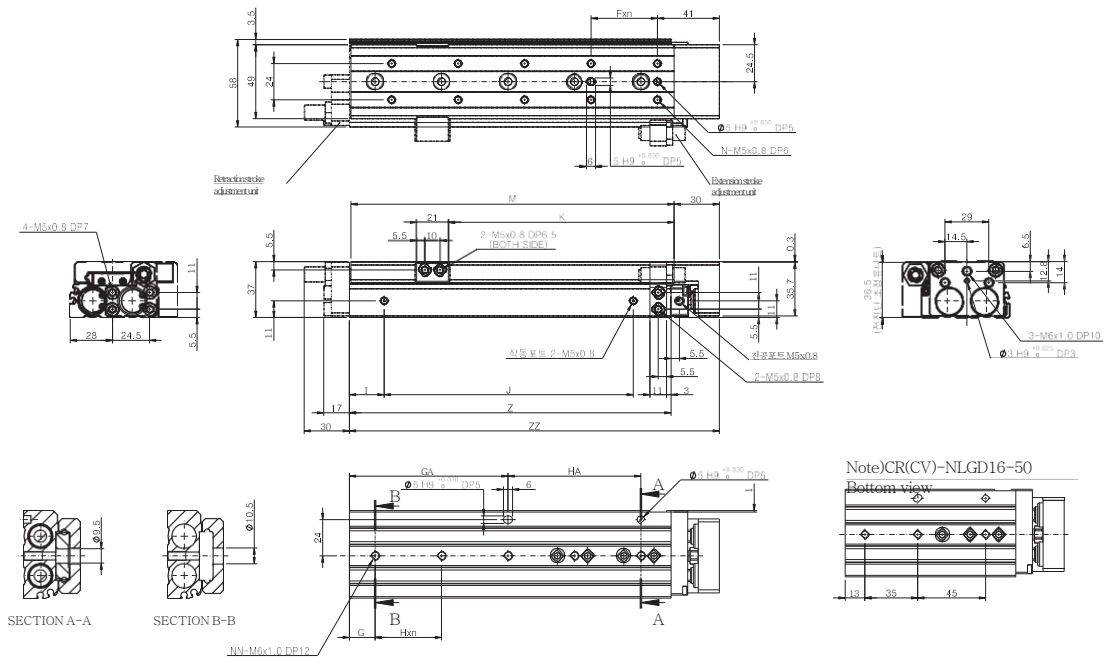
CR(CV)-NLGD12L Dimensions (Reversible type)



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
100	36x4	10	12	36x4	5	84	72	17	135	120	173	172	201
75	36x3	8	23	36x3	4	59	72	17	110	95	148	147	176
50	34x2	6	9	39x2	3	48	39	13	70	70	104	103	132
40	34x2	6	Note)	Note)	3	38	39	15	58	60	94	93	122
30	38x1	4	20	40x1	2	20	40	14	42	50	77	76	105
20	28x1	4	18	32x1	2	18	32	12	34	40	67	66	95
10	28x1	4	18	32x1	2	18	32	12	34	30	67	66	95

CR(CV)-NLGD (High-precision slide table cylinder) Series

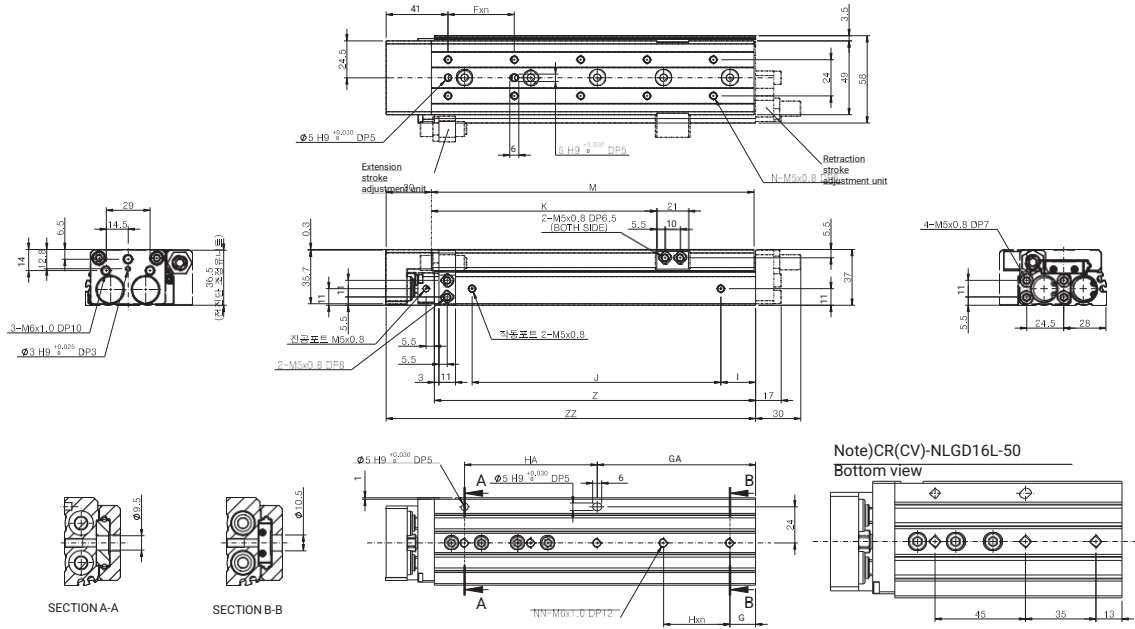
CR(CV)-NLGD16 Dimensions



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
125	44x4	10	17	44x4	5	105	88	23	165	149.5	214	213	245
100	44x3	8	36	44x3	4	80	88	18	145	124.5	189	188	220
75	46x2	6	21	52x2	3	73	52	15	105	99.5	146	145	177
50	40x2	6	Note)	Note)	3	48	45	20	68	74.5	114	113	145
40	58x1	4	19	58x1	2	19	58	12	60	64.5	98	97	129
30	48x1	4	19	48x1	2	19	48	12	50	54.5	88	87	119
20	38x1	4	18	39x1	2	18	39	12	40	44.5	78	77	109
10	38x1	4	18	39x1	2	18	39	12	40	34.5	78	77	109

CR(CV)-NLGD Series

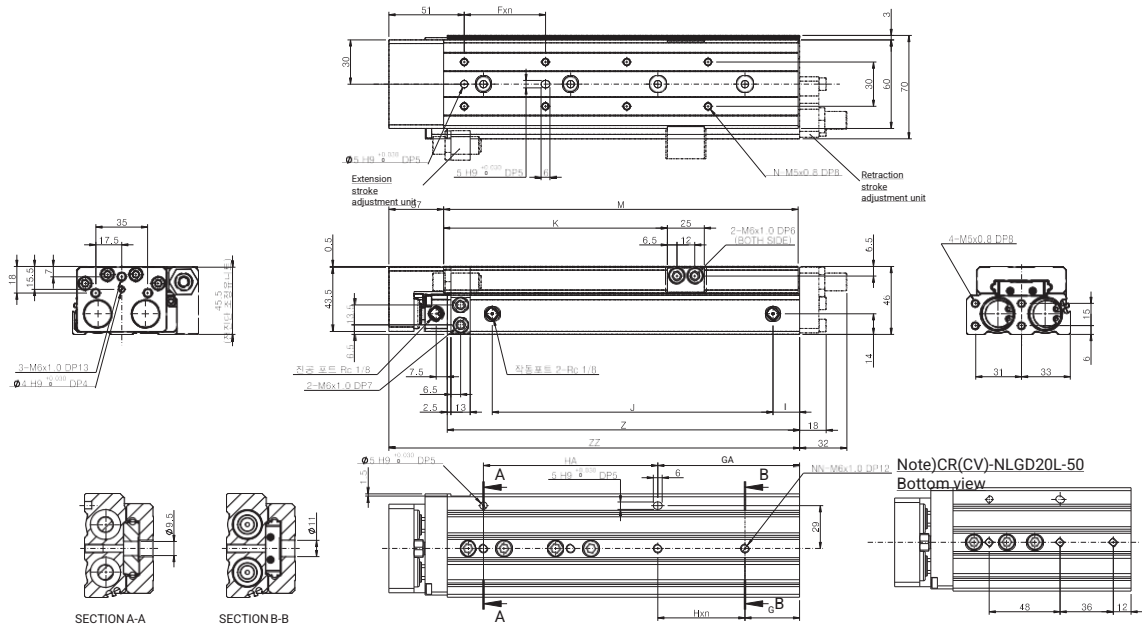
CR(CV)-NLGD16L Dimensions (Reversible type)



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
125	44x4	10	17	44x4	5	105	88	23	165	149.5	214	213	245
100	44x3	8	36	44x3	4	80	88	18	145	124.5	189	188	220
75	46x2	6	21	52x2	3	73	52	15	105	99.5	146	145	177
50	40x2	6	Note)	Note)	3	48	45	20	68	74.5	114	113	145
40	58x1	4	19	58x1	2	19	58	12	60	64.5	98	97	129
30	48x1	4	19	48x1	2	19	48	12	50	54.5	88	87	119
20	38x1	4	18	39x1	2	18	39	12	40	44.5	78	77	109
10	38x1	4	18	39x1	2	18	39	12	40	34.5	78	77	109

CR(CV)-NLGD Series

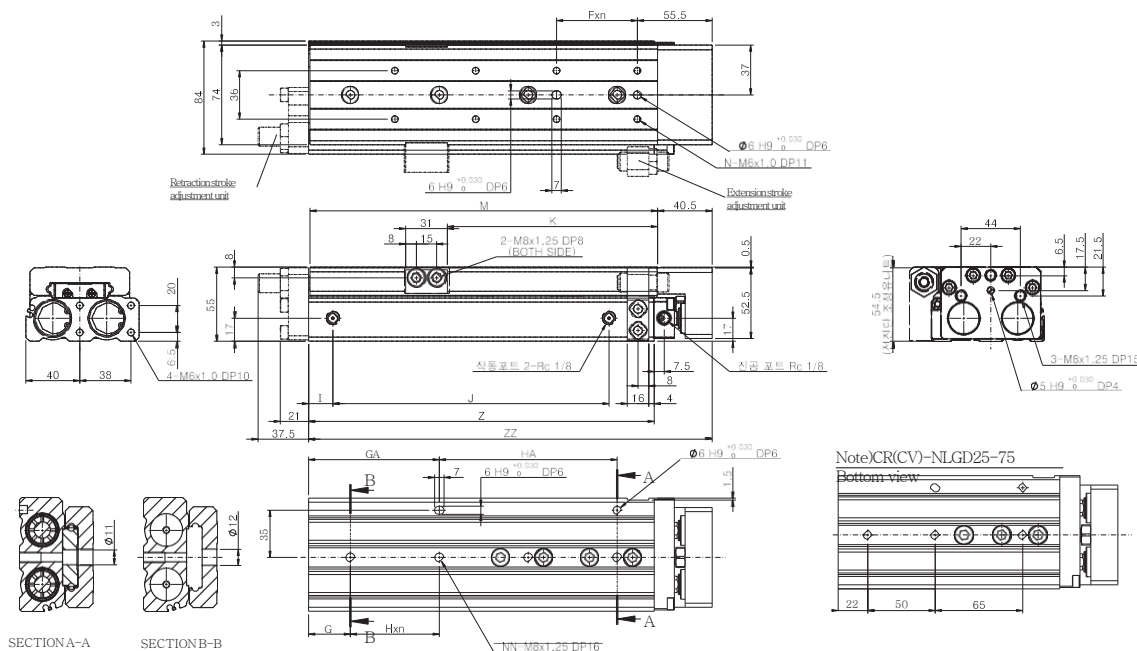
CR(CV)-NLGD20L Dimensions (Reversible type)



STROKE	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	62x3	8	56	62x3	4	118	124	21	215	176.5	268	266.5	306
125	55x3	8	37	59x3	4	96	118	18	190	151.5	240	238.5	278
100	50x3	8	18	56x3	4	74	112	25	155	126.5	212	210.5	250
75	55x2	6	17	56x2	3	73	56	23	100	101.5	155	153.5	193
50	42x2	6	Note)	Note)	3	48	48	18	72	76.5	122	120.5	160
40	58x1	4	22	56x1	2	22	56	16	56	66.5	104	102.5	142
30	48x1	4	22	46x1	2	18	50	16	46	56.5	94	92.5	132
20	40x1	4	22	46x1	2	18	50	16	46	46.5	94	92.5	132
10	45x1	4	22	46x1	2	18	50	16	46	36.5	94	92.5	132

CR(CV)-NLGD (High-precision slide table cylinder) Series

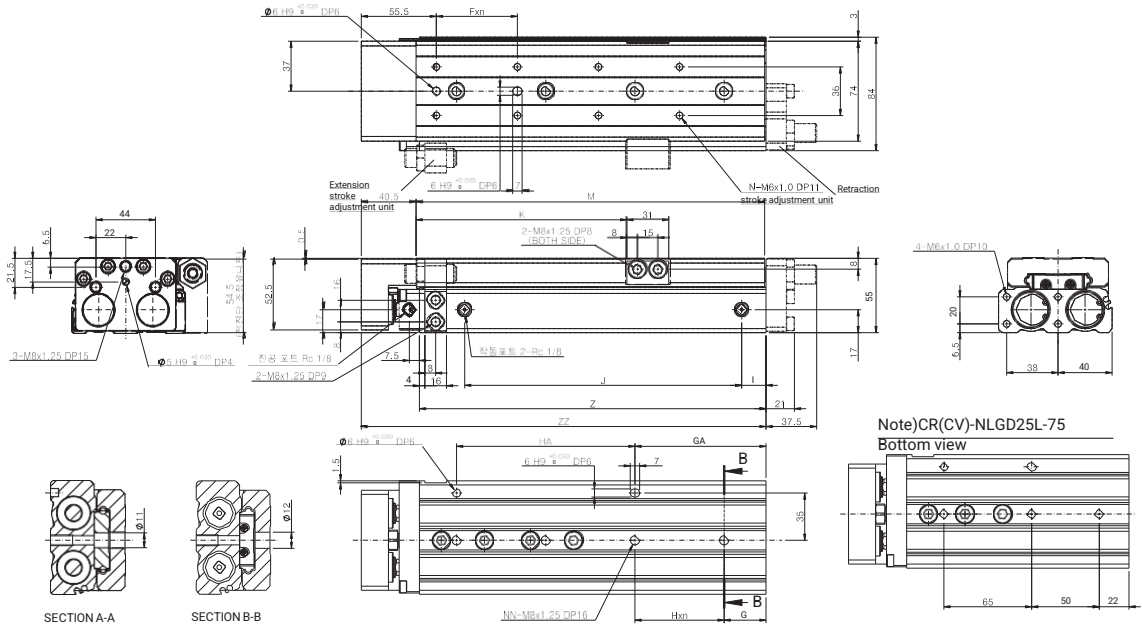
CR(CV)-NLGD25 Dimensions



Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	65x3	8	56	66x3	4	122	132	18	230	181	283	281.5	324.5
125	60x3	8	31	66x3	4	97	132	18	205	156	258	256.5	299.5
100	48x3	8	44	44x3	4	88	88	20	150	131	205	203.5	246.5
75	60x2	6	Note)	Note)	3	72	65	31	100	106	166	164.5	207.5
50	75x1	4	32	80x1	2	32	80	16	90	81	141	139.5	182.5
40	65x1	4	23	65x1	2	23	65	16	66	71	117	115.5	158.5
30	55x1	4	23	55x1	2	23	55	16	56	61	107	105.5	148.5
20	46x1	4	23	55x1	2	23	55	16	56	51	107	105.5	148.5
10	55x1	4	23	55x1	2	23	55	16	56	41	107	105.5	148.5

CR(CV)-NLGD Series

CR(CV)-NLGD25L Dimensions (Reversible type)

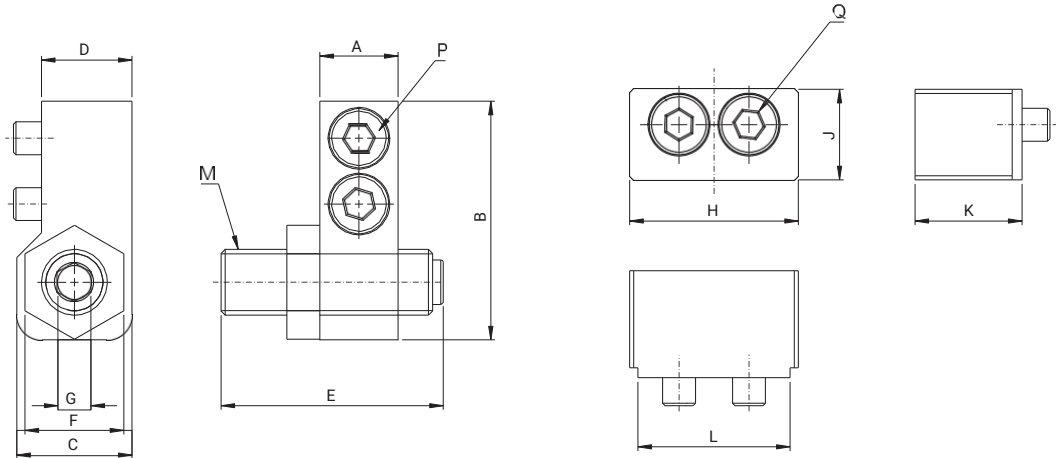


Stroke	Fxn	N	G	Hxn	NN	GA	HA	I	J	K	M	Z	ZZ
150	65x3	8	56	66x3	4	122	132	18	230	181	283	281.5	324.5
125	60x3	8	31	66x3	4	97	132	18	205	156	258	256.5	299.5
100	48x3	8	44	44x3	4	88	88	20	150	131	205	203.5	246.5
75	60x2	6	Note)	Note)	3	72	65	31	100	106	166	164.5	207.5
50	75x1	4	32	80x1	2	32	80	16	90	81	141	139.5	182.5
40	65x1	4	23	65x1	2	23	65	16	66	71	117	115.5	158.5
30	55x1	4	23	55x1	2	23	55	16	56	61	107	105.5	148.5
20	46x1	4	23	55x1	2	23	55	16	56	51	107	105.5	148.5
10	55x1	4	23	55x1	2	23	55	16	56	41	107	105.5	148.5

CR(CV)-NLGD (High-precision slide table cylinder) Series

Damper Stopper Option Dimensions

Extension stroke Adjuster Dimensions (RF)



BODY mounting parts

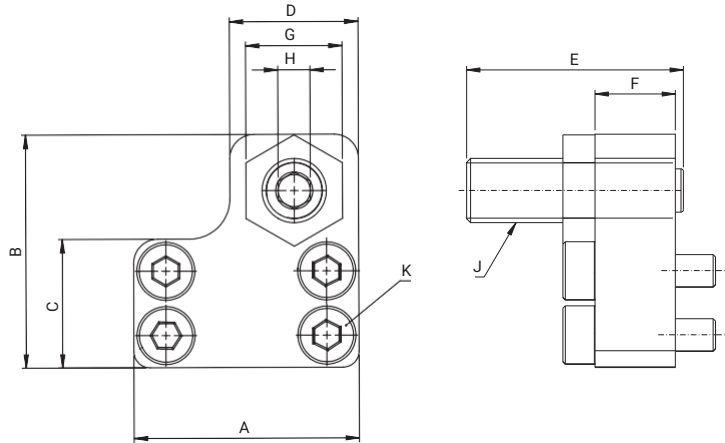
TABLE mounting parts

Bore Size	Model	Stroke Adjustment range (mm)	BODY mounting parts										TABLE mounting parts				
			A	B	C	D	E	F	G	M	P	H	J	K	L	Q	
CR(CV)-NLGD06	NLGD06-RF	5	6	19	8	7	16.5	8	2.5	M5x0.8	M2.5x6L	12.5	7	8.3	-	M2.5x8L	
	NLGD06-RF15	15					26.5										
CR(CV)-NLGD08	NLGD08-RF	5	7	22	9	7.5	21.5	8	3	M6x1.0	M3x8L	14.6	8	10	-	M3x10L	
	NLGD08-RF15	15					31.5										
	NLGD08-RF25	25					41.5										
CR(CV)-NLGD12	NLGD12-RF	5	9.5	29	14	11	27	12	4	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L	
	NLGD12-RF15	15					37										
	NLGD12-RF25	25					47										
CR(CV)-NLGD16	NLGD16-RF	5	11	36	17	13.5	31	14	5	M10x1.0	M5x12L	23	13.5	16	21	M5x15L	
	NLGD16-RF15	15					41										
	NLGD16-RF25	25					51										
CR(CV)-NLGD20	NLGD20-RF	5	13	45	20	16	33	17	6	M12x1.75	M6x15L	27	17	22	25	M6x20L	
	NLGD20-RF15	15					43										
	NLGD20-RF25	25					53										
CR(CV)-NLGD25	NLGD25-RF	5	16	54	22	18	38.5	19	6	M14x1.5	M8x18L	33	19	22	31	M8x20L	
	NLGD25-RF15	15					48.5										
	NLGD25-RF25	25					58.5										

CR(CV)-NLGD Series

Damper Stopper Option Dimensions

Retraction Stroke Adjuster Dimensions (RB)



Bore Size	Model	Stroke Adjustment range (mm)	A	B	C	D	E	F	G	H	K	J
CR(CV)-NLGD06	NLGD06-RB	5	17.5	19	13	8	16.5	5.5	8	2.5	M2.5X8L	M5x0.8
	NLGD06-RB15	15					26.5					
CR(CV)-NLGD08	NLGD08-RB	5	21	22	12	10	21.5	8	8	3	M3x12L	M6x1.0
	NLGD08-RB15	15					31.5					
	NLGD08-RB25	25					41.5					
CR(CV)-NLGD12	NLGD12-RB	5	28	29	16	16	27	10	12	4	M4x15L	M8x1.0
	NLGD12-RB15	15					37					
	NLGD12-RB25	25					47					
CR(CV)-NLGD16	NLGD16-RB	5	33.5	35.5	20	17	31	12	14	5	M5x18L	M10x1.0
	NLGD16-RB15	15					41					
	NLGD16-RB25	25					51					
CR(CV)-NLGD20	NLGD20-RB	5	41	44.5	25	23	33	13	17	6	M5x20L	M12x1.75
	NLGD20-RB15	15					43					
	NLGD20-RB25	25					53					
CR(CV)-NLGD25	NLGD25-RB	5	49	53.5	31	28	38.5	15	19	6	M6x25L	M14x1.5
	NLGD25-RB15	15					48.5					
	NLGD25-RB25	25					58.5					

HOW TO ORDER

NLGD **12** — **RF** **15**

1
2
3

1 Bore Size

06 : 6mm
 08 : 8mm
 12 : 12mm
 16 : 16mm
 20 : 20mm
 25 : 25mm

2 Stroke Adjuster

- Damper stopper
 RF : Extension stroke end
 RB : Retraction stroke end

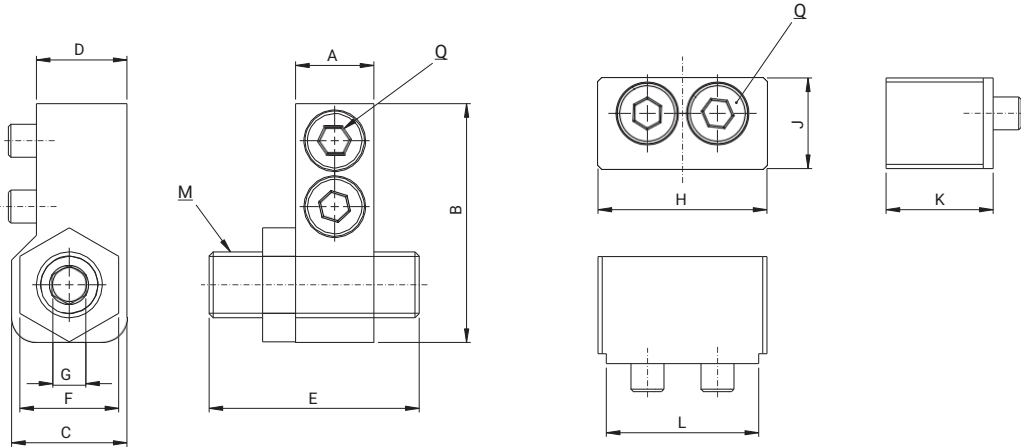
3 Stroke Adjustment Range

Blank : 5mm
 15 : 15mm
 25 : 25mm

CR(CV)-NLGD (High-precision slide table cylinder) Series

Metal Stopper Option Dimensions

Extension stroke Adjuster Dimensions (MF)



BODY mounting parts

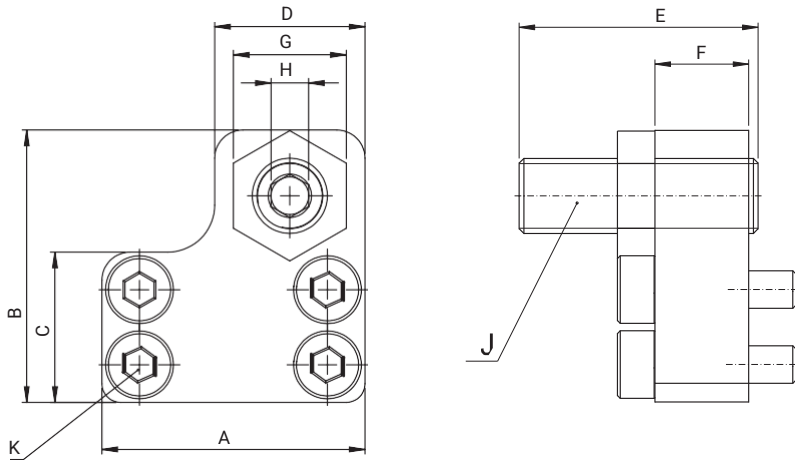
TABLE mounting parts

Bore Size	Model	Stroke Adjustment range (mm)	BODY mounting parts										TABLE mounting parts				
			A	B	C	D	E	F	G	M	P	H	J	K	L	Q	
CR(CV)-NLGD06	NLGD06-MF	5	6	19	8	7	15.5	8	2.5	M5x0.8	M2.5x6L	12.5	7	8.3	-	M2.5x8L	
	NLGD06-MF15	15					25.5										
CR(CV)-NLGD08	NLGD08-MF	5	7	22	9	7.5	20	8	3	M6x1.0	M3x8L	14.6	8	10	-	M3x10L	
	NLGD08-MF15	15					30										
	NLGD08-MF25	25					40										
CR(CV)-NLGD12	NLGD12-MF	5	9.5	29	14	11	25.5	12	4	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L	
	NLGD12-MF15	15					35.5										
	NLGD12-MF25	25					45.5										
CR(CV)-NLGD16	NLGD16-MF	5	11	36	17	13.5	29.5	14	5	M10x1.0	M5x12L	23	13.5	16	21	M5x15L	
	NLGD16-MF15	15					39.5										
	NLGD16-MF25	25					49.5										
CR(CV)-NLGD20	NLGD20-MF	5	13	45	20	16	32.5	17	6	M12x1.75	M6x15L	27	17	22	25	M6x20L	
	NLGD20-MF15	15					42.5										
	NLGD20-MF25	25					52.5										
CR(CV)-NLGD25	NLGD25-MF	5	16	54	22	18	36	19	6	M14x1.5	M8x18L	33	19	22	31	M8x20L	
	NLGD25-MF15	15					46										
	NLGD25-MF25	25					56										

CR(CV)-NLGD Series

Metal Stopper Option Dimensions

Retraction Stroke Adjuster Dimensions (MB)



Bore Size	Model	Stroke Adjustment Range (mm)	A	B	C	D	E	F	G	H	K	J
CR(CV)-NLGD06	NLGD06-MB	5	17.5	19	13	8	15.5	5.5	8	2.5	M2.5x8L	M5x0.8
	NLGD06-MB15	15					25.5					
CR(CV)-NLGD08	NLGD08-MB	5	21	22	12	10	20	8	8	3	M3x12L	M6x1.0
	NLGD08-MB15	15					30					
	NLGD08-MB25	25					40					
CR(CV)-NLGD12	NLGD12-MB	5	28	29	16	16	25.5	10	12	4	M4x15L	M8x1.0
	NLGD12-MB15	15					35.5					
	NLGD12-MB25	25					45.5					
CR(CV)-NLGD16	NLGD16-MB	5	33.5	35.5	20	17	29.5	12	14	5	M5x18L	M10x1.0
	NLGD16-MB15	15					39.5					
	NLGD16-MB25	25					49.5					
CR(CV)-NLGD20	NLGD20-MB	5	41	44.5	25	23	32.5	13	17	6	M5x20L	M12x1.75
	NLGD20-MB15	15					42.5					
	NLGD20-MB25	25					52.5					
CR(CV)-NLGD25	NLGD25-MB	5	49	53.5	31	28	36	15	19	6	M6x25L	M14x1.5
	NLGD25-MB15	15					46					
	NLGD25-MB25	25					56					

HOW TO ORDER

NLGD **12** — **MF** **15**

1
2
3

1 Bore Size

06 : 6mm
 08 : 8mm
 12 : 12mm
 16 : 16mm
 20 : 20mm
 25 : 25mm

2 Stroke Adjuster

- Metal stopper
 MF : Extension stroke end
 MB : Retraction stroke end

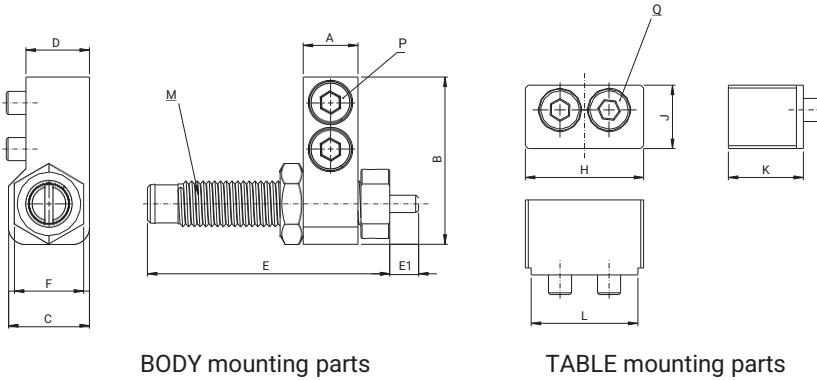
3 Stroke Adjustment Range

Blank : 5mm
 15 : 15mm
 25 : 25mm

CR(CV)-NLGD (High-precision slide table cylinder) Series

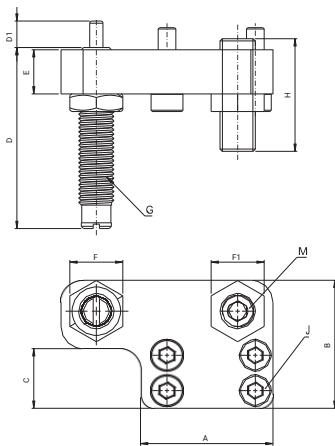
Shock Absorber Option Dimensions

Extension Shock Absorber Dimensions (SF)



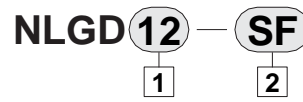
Bore Size	Series	BODY mounting parts									TABLE mounting parts				
		A	B	C	D	E	E1	F	M	P	H	J	K	L	Q
CR(CV)-NLGD08	NLGD08-SF	7	24.5	14	12.5	42	5	12	M8x1.0	M3x10L	14.6	8	10	-	M3x12L
CR(CV)-NLGD12	NLGD12-SF	9.5	29	14	11	42	5	12	M8x1.0	M4x10L	20.5	11	13	18.5	M4x12L
CR(CV)-NLGD16	NLGD16-SF	11	36	17	13.5	52	7	14	M10x1.0	M5x12L	23	13.5	16	21	M5x15L
CR(CV)-NLGD20	NLGD20-SF	13	46	22	17.5	66	13.5	20	M14x1.5	M6x18L	27	17	22	25	M6x20L
CR(CV)-NLGD25	NLGD25-SF	16	54	22	18	66	13.5	20	M14x1.5	M8x18L	33	19	22	31	M8x20L

Retraction Shock Absorber Option Dimensions (SB)



Bore Size	Series	A	B	C	D	D1	E	F	F1	G	G1	H	J
CR(CV)-NLGD08	NLGD08-SB	25	24.5	12	41	6	8	12	8	M8x1.0	M6x1.0	20	M3x12L
CR(CV)-NLGD12	NLGD12-SB	30	29	13.5	41	6	10	12	12	M8x1.0	M8x1.0	25.5	M4x15L
CR(CV)-NLGD16	NLGD16-SB	33.5	35.5	18	51	8	12	14	14	M10 x1.0	M10 x1.0	29.5	M5x18L
CR(CV)-NLGD20	NLGD20-SB	41	46	20	64.5	15	13	20	17	M12 x1.25	M12 x1.25	32.5	M5x20L
CR(CV)-NLGD25	NLGD25-SB	49	53.5	27	64.5	15	15	20	17	M14 x1.5	M12 x1.25	36	M6x25L

HOW TO ORDER



- 1 Bore Size
08 : 8mm
12 : 12mm
16 : 16mm
20 : 20mm
25 : 25mm

- 2 Stroke Adjuster
- Shock absorber
SF : Extension stroke end
SB : Retraction stroke end