

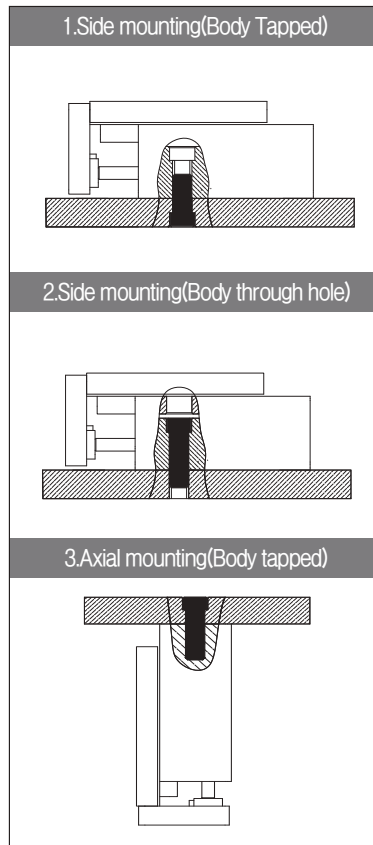
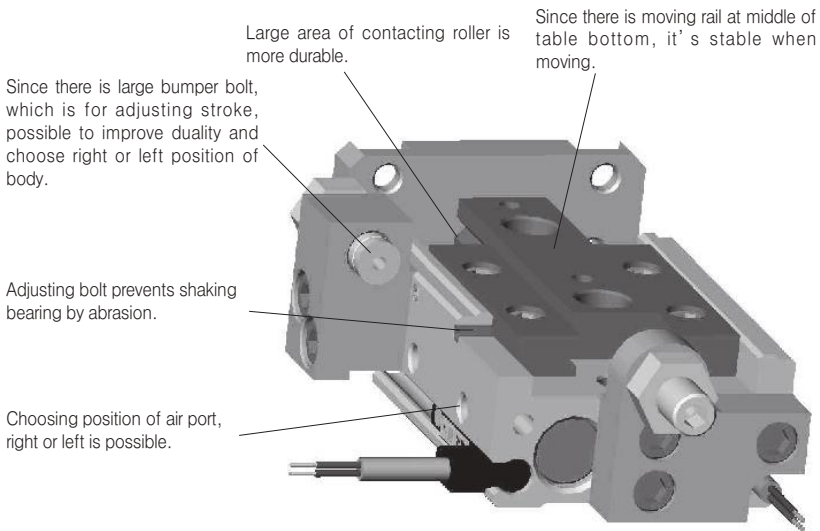
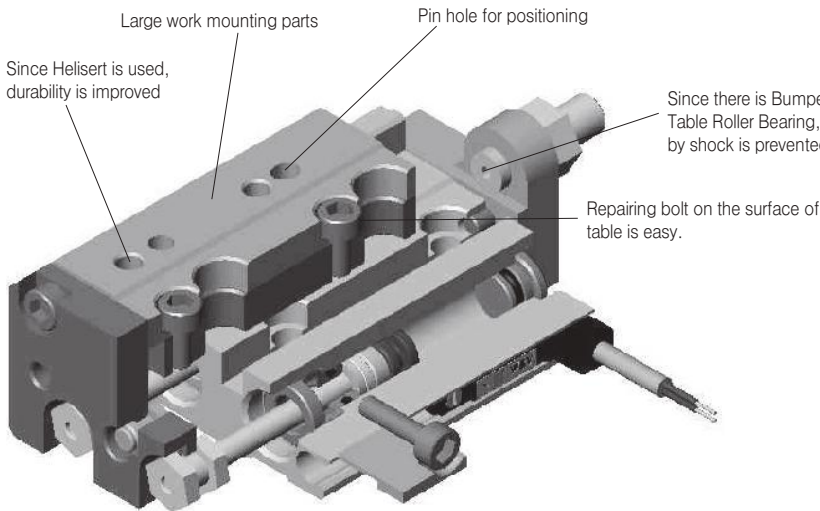
# Series **NLCD**

## Table Cylinder

Bore Size(mm) : Ø6, Ø8, Ø12, Ø16, Ø20, Ø25, Ø32



Patent No. 0380194



- 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

### NLCD Variation

Model	Bore Size $\phi$ (mm)	Standard Stroke(mm)									Adjuster Option Stroke Adjuster	Auto Switch
		10	20	30	40	50	75	100	125	150		
NLCD6	6	■	■	■	■	■	-	-	-	-	Front side	Reed Switch [W8H] [W8V]
NLCD8	8	■	■	■	■	■	■	-	-	-		
NLCD12	12	■	■	■	■	■	■	■	-	-	Rear side	Solid State Switch [W9H] [W9V] [W9HN] [W9HP]
NLCD16	16	■	■	■	■	■	■	■	■	-		
NLCD20	20	■	■	■	■	■	■	■	■	■	Both side	
NLCD25	25	■	■	■	■	■	■	■	■	■		
NLCD32	32	-	-	■	-	-	■	■	-	-		

## Series NLCD



PAT

### Specifications

Bore Size(Ømm)	6, 8, 12, 16, 20, 25, 32
Fluid	Air
Action	Double Acting
Operating Pressure	0.15~0.7Mpa(21~99psi)
Proof Pressure	1.05Mpa(152psi)
Ambient and Fluid Temp °C(°F)	-10~60°C(14~140°F)
Piston Speed	50~500mm/s
Lubrication	Non Lubrication
Auto Switch	Reed Switch : DC(24V)/AC(110V) Solid State Switch : DC(24V)
Stroke Length Tolerance	0~+1mm
Option(Stroke Adjust)	Bolt+Dmaper (Front side/Rear side/Both side)

### Option

#### Stroke Adjuster

- Front side[RF]
- Rear side[RB]
- Both side[R]

※ Standard Adjustable Stroke Range 0 to 5mm

Front side[RF]

Rear side[RB]



### Standard Stroke

Model	Standard Stroke(mm)								
	10	20	30	40	50	75	100	125	150
NLCD6	■	■	■	■	■	-	-	-	-
NLCD8	■	■	■	■	■	■	-	-	-
NLCD12	■	■	■	■	■	■	■	-	-
NLCD16	■	■	■	■	■	■	■	■	-
NLCD20	■	■	■	■	■	■	■	■	■
NLCD25	■	■	■	■	■	■	■	■	■
NLCD32	-	-	■	■	■	■	■	-	-

### Weight Table

(Unit:g(lb))

Model	Standard Stroke(mm)								
	10	20	30	40	50	75	100	125	150
NLCD6	97(0.21)	120(0.26)	138(0.30)	186(0.41)	216(0.47)	-	-	-	-
NLCD8	165(0.36)	176(0.39)	209(0.46)	258(0.57)	313(0.69)	456(1.00)	-	-	-
NLCD12	336(0.74)	336(0.74)	336(0.74)	296(0.65)	496(1.09)	683(1.50)	920(2.03)	-	-
NLCD16	588(1.29)	588(1.29)	597(1.31)	656(1.44)	784(1.73)	1127(2.48)	1421(3.13)	1750(3.86)	-
NLCD20	950(2.09)	969(2.13)	997(2.19)	1092(2.41)	1235(2.72)	1615(3.56)	2137(4.71)	2650(5.84)	3141(6.92)
NLCD25	1599(3.52)	1618(3.57)	1627(3.58)	1767(3.89)	2008(4.42)	2557(5.64)	3162(6.97)	4150(9.15)	4800(10.58)
NLCD32	-	-	2416(5.32)	-	-	3168(6.98)	3960(8.73)	-	-

## Series NLCD

Theoretical Force									
Model	Rod Diameter (mm)	Operating Direction	Piston Area (mm <sup>2</sup> )	Operating Pressure · Mpa(psi)					
				0.2(29)	0.3(43)	0.4(58)	0.5(72)	0.6(87)	0.7(101)
				(Unit:N)					
NLCD6	3	Extention	57	11	17	23	29	34	40
		Retraction	42	8	13	17	21	25	29
NLCD8	4	Extention	101	20	30	40	51	61	71
		Retraction	75	15	23	30	38	45	53
NLCD12	6	Extention	226	45	68	90	113	136	158
		Retraction	170	34	51	68	85	102	119
NLCD16	8	Extention	402	80	121	161	201	241	281
		Retraction	302	60	91	121	151	181	211
NLCD20	10	Extention	628	126	188	251	314	377	440
		Retraction	471	94	141	188	236	283	330
NLCD25	12	Extention	982	196	295	393	491	589	687
		Retraction	756	151	227	302	378	454	529

Note) Theoretical Force[N]=Pressure[Mpa] × Piston Area[mm<sup>2</sup>]

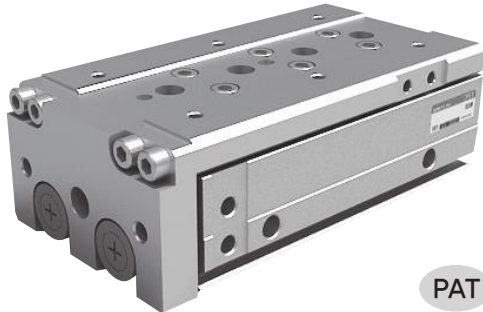
1N ≈ 0.102kgf, 1Mpa ≈ 10.2kgf/cm<sup>2</sup>

- ACP
- APM
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ADQ2
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- ASTH
- NLCD**
- NLCS

# Series **NLCD**

## Table Cylinder

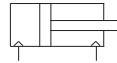
Bore Size :  $\varnothing 6$ ,  $\varnothing 8$ ,  $\varnothing 12$ ,  $\varnothing 16$ ,  $\varnothing 20$ ,  $\varnothing 25$ ,  $\varnothing 32$



PAT

- LARGE MOUNTING SURFACE
- LARGE ROLLER CONTACT AREA
- CHOOSING POSITION OF AIR PORT, RIGHT OR LEFT IS POSSIBLE
- MOUNTING POSSIBLE IN THREE DIRECTIONS
- ATTACHING FIXTURE IS EASY
- EASY REPAIRING IS POSSIBLE FROM THE REPAIRING BOLT ON THE SURFACE OF TABLE

Symbol



## How to Order

**NLCD**   **12** — **50**   **RF15**   **R** —   **W8H**   **S**

1  
 2  
 3  
 4  
 5  
 6

**1** Table Cylinder Double Rod(Built in Magnet)

**2** Bore Size( $\varnothing$ mm)

6 :  $\varnothing 6$ mm  
 8 :  $\varnothing 8$ mm  
 12 :  $\varnothing 12$ mm  
 16 :  $\varnothing 16$ mm  
 20 :  $\varnothing 20$ mm  
 25 :  $\varnothing 25$ mm  
 32 :  $\varnothing 32$ mm

**3** Stroke(mm)

$\varnothing 6$ -10, 20, 30, 40, 50  
 $\varnothing 8$ -10, 20, 30, 40, 50, 75  
 $\varnothing 12$ -10, 20, 30, 40, 50, 75, 100  
 $\varnothing 16$ -10, 20, 30, 40, 50, 75, 100, 125  
 $\varnothing 20$ -10, 20, 30, 40, 50, 75, 100, 125, 150  
 $\varnothing 25$ -10, 20, 30, 40, 50, 75, 100, 125, 150  
 $\varnothing 32$ -30, 75, 100

**4** Adjuster Option

— Rubber Damper  
 RF : Fr ont side  
 RB : Rear side  
 R : Both side (RF+RB)

※ Adjustable Range : 5, 15, 25mm  
 ※ Standard Adjustable Stroke Range 0 to 5mm

— Shock-Absorber

SF : Front side

SB : Rear side

S : Both side (SF+SB)

※ NLCD6, NLCD32 : Not Available Shock Absorber Option

**5** Auto Switch

Blank : None

W8V : Reed Switch(Vertical Type)

W8H : Reed Switch(Horizontal Type)

W9H : Solid State Switch(Horizontal Type)

W9V : Solid State Switch(Vertical Type)

W9HN : Solid State Switch(3 Wire, NPN)

W9HP : Solid State Switch(3 Wire, PNP)

※ Standard auto switch lead wire length is 1m.

3m leads available on all models by adding a "L"  
 suffix to the part number. (ex:W8HL, W9VL)

**6** Number of Auto Switches

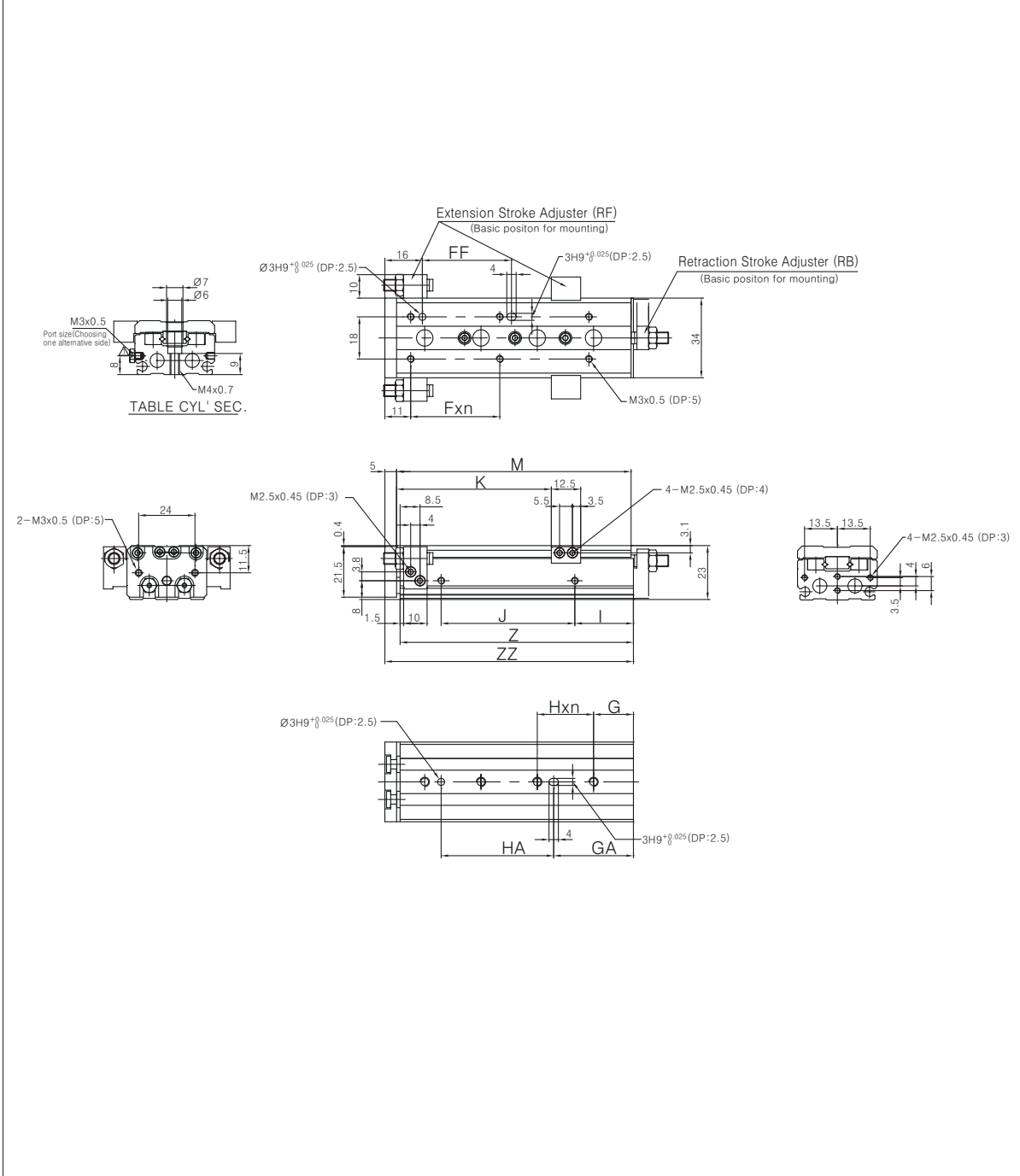
Blank : 2 pcs

S : 1 pc

N : N pcs

# Series NLCD

## Dimensions NLCD 6 (Unit:mm)



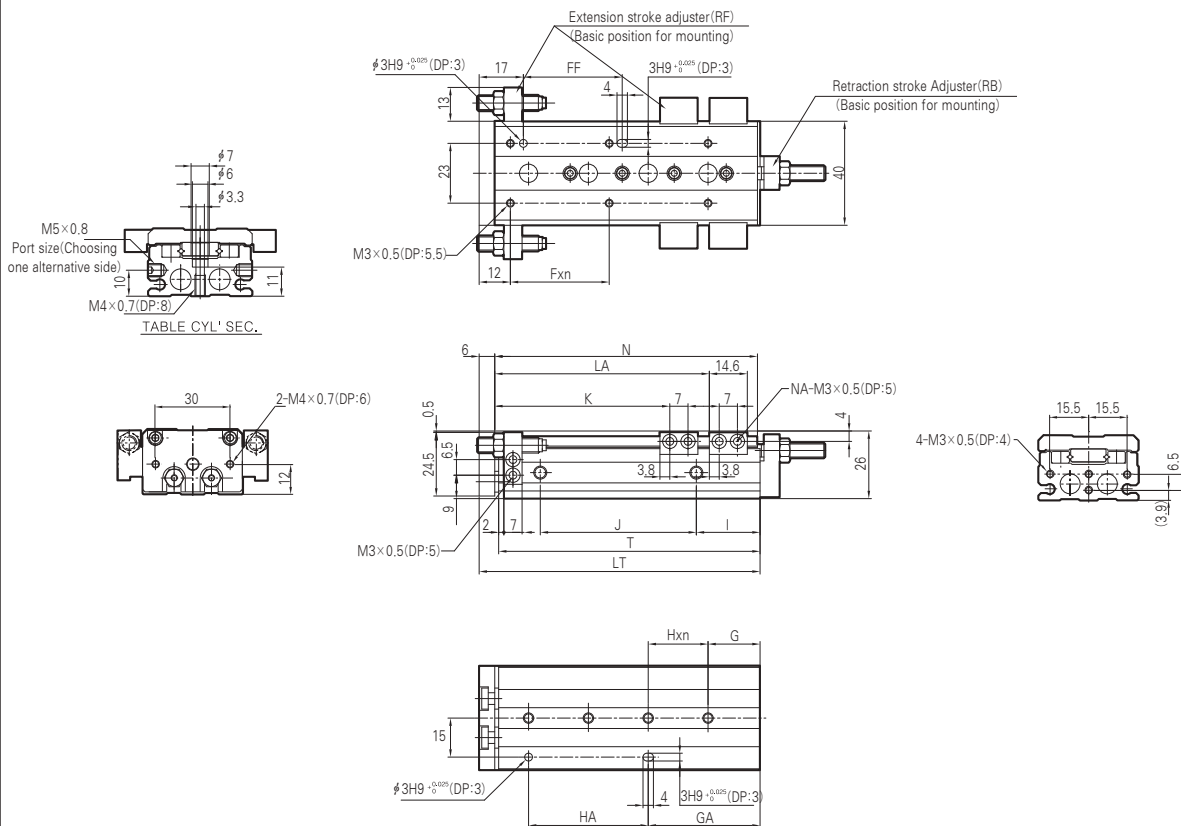
Model	Fxn	FF	G	Hxn	GA	HA	I	J	L	N	T	LT
NLCD 06-10	20×1	20	6	25×1	12	25	10	17	26	42	41.5	48
NLCD 06-20	30×1	30	6	35×1	12	20	10	27	36	52	51.5	58
NLCD 06-30	20×2	20	11	20×2	22	20	7	40	46	62	61.5	68
NLCD 06-40	28×2	28	13	30×2	26	30	19	50	56	84	83.5	90
NLCD 06-50	38×2	38	17	24×3	34	48	25	60	66	100	99.5	106

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- ADQ
- AQ2
- ADQ2
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- AJM
- ABK
- ACK1
- NSK
- AG
- NGQ
- AGX
- GX
- NP
- ADR
- AMR
- NDM
- ARD
- NST
- AST
- ASTH
- NLCD**
- NLCS

# Series NLCD

## Dimensions NLCD 8

(Unit: mm)

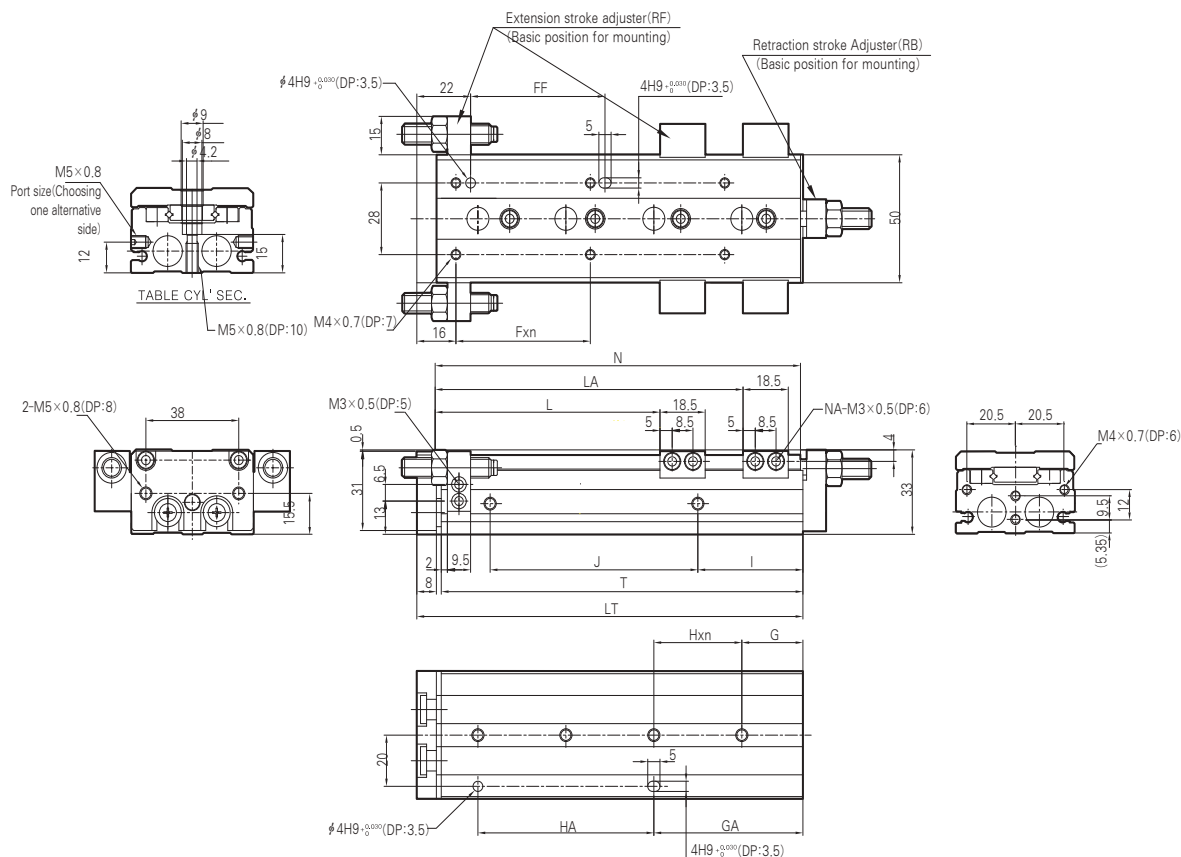


Model	Fxn	FF	G	Hxn	GA	HA	I	J	K	LA	NA	N	T	LT
NLCD 08-10	25×1	25	9	28×1	17	20	13	19.5	23.5	-	4	49	48.5	56
NLCD 08-20	25×1	25	12	30×1	12	30	8.5	29	33.5	-	4	54	53.5	61
NLCD 08-30	40×1	40	13	20×2	33	20	9.5	39	43.5	-	4	65	64.5	72
NLCD 08-40	50×1	50	15	28×2	43	28	10.5	56	53.5	-	4	83	82.5	90
NLCD 08-50	38×2	38	20	23×3	43	46	24.5	60	63.5	82.5	8	101	100.5	108
NLCD 08-75	50×2	50	27	28×4	83	56	38.5	96	88.5	132.5	8	151	150.5	158

# Series NLCD

## Dimensions NLCD 12

(Unit:mm)



Model	Fxn	FF	G	Hxn	GA	HA	I	J	L	LA	NA	N	T	LT
NLCD 12-10	35×1	35	15	40×1	15	40	10	40	26.5	-	4	71	70	80
NLCD 12-20	35×1	35	15	40×1	15	40	10	40	36.5	-	4	71	70	80
NLCD 12-30	35×1	35	15	40×1	15	40	10	40	46.5	-	4	71	70	80
NLCD 12-40	50×1	50	17	25×2	42	25	10	52	56.5	-	4	83	82	92
NLCD 12-50	35×2	35	15	36×2	51	36	22	60	66.5	-	4	103	102	112
NLCD 12-75	55×2	55	25	36×3	61	72	43	85	91.5	125.5	8	149	148	158
NLCD 12-100	65×2	65	35	38×4	111	76	52	130	116.5	179.5	8	203	202	212

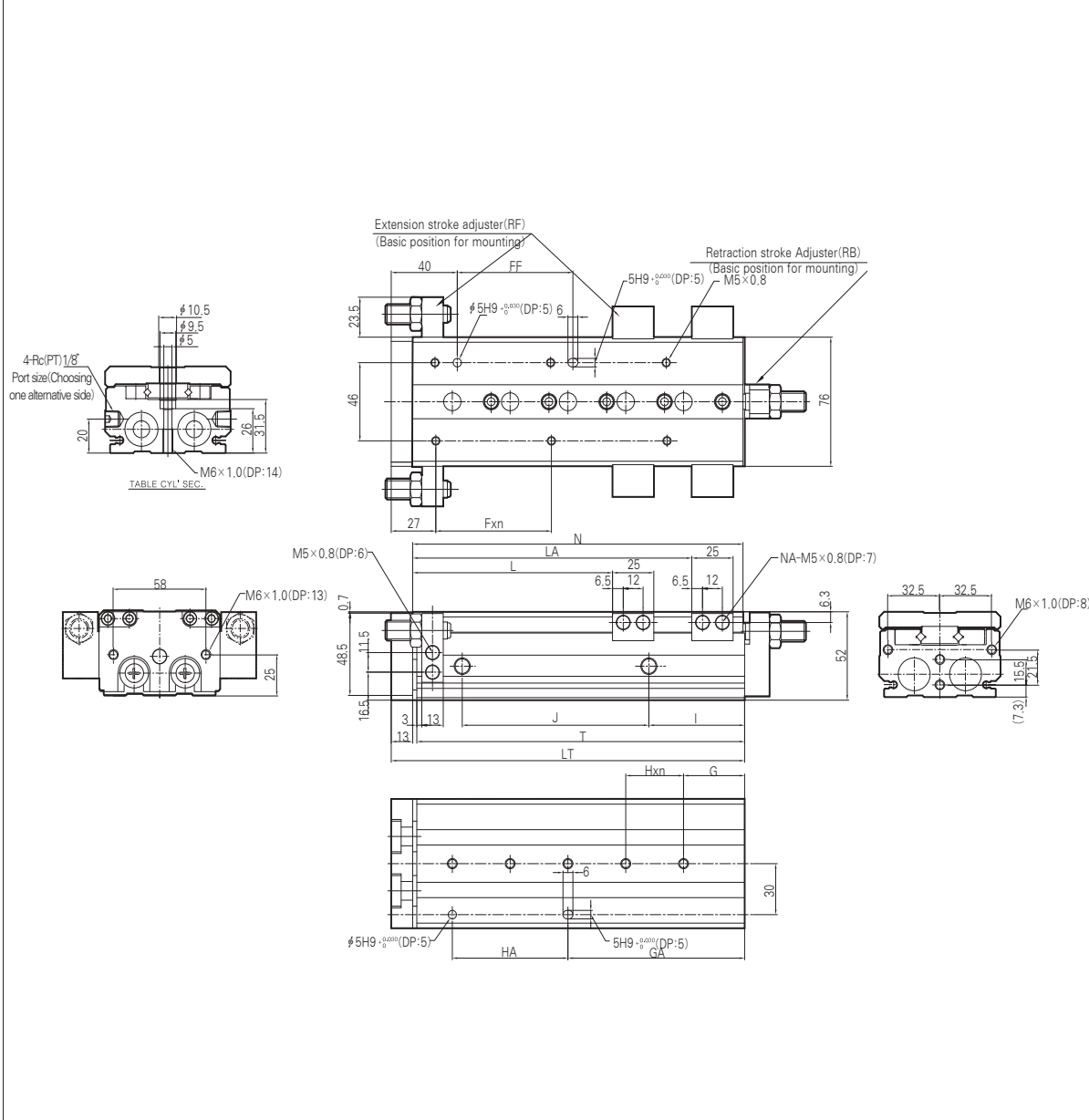
- ACP
- APM
- AS
- AX
- AM2
- AM
- AL
- ALX
- AQ
- ADQ
- AQ2
- ADQ2
- AJ
- AJM
- ABK
- ACK1
- NSK
- AG
- NGQ
- AGX
- GX
- NP
- ADR
- AMR
- NDM
- ARD
- NST
- AST
- ASTH
- NLCD**
- NLCS





# Series NLCD

Dimensions NLCD 20 (Unit:mm)



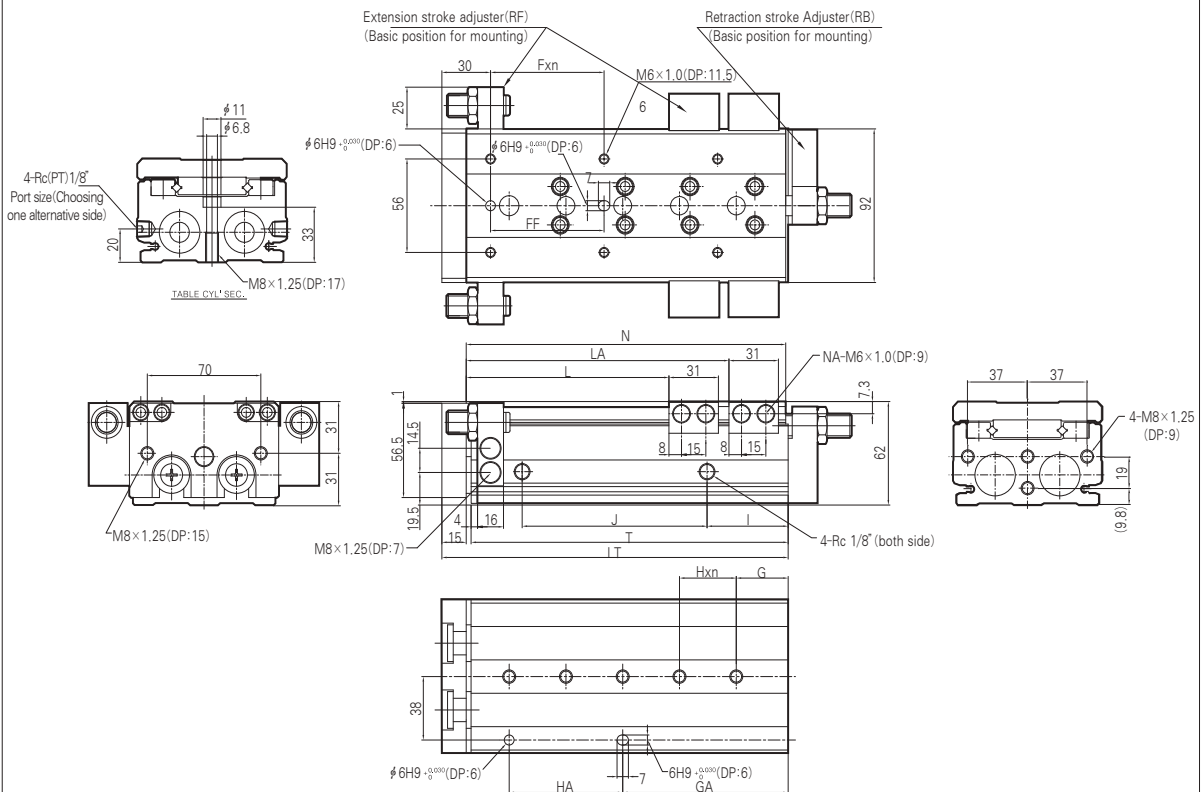
Model	Fxn	FF	G	Hxn	GA	HA	I	J	L	LA	NA	N	T	LT
NLCD 20-10	50×1	50	15	45×1	25	35	10	44	31	-	4	83	81.5	97
NLCD 20-20	50×1	50	15	45×1	25	35	10	44	41	-	4	83	81.5	97
NLCD 20-30	50×1	50	15	45×1	25	35	10	44	51	-	4	83	81.5	97
NLCD 20-40	60×1	60	15	55×1	35	35	10	54	61	-	4	93	91.5	107
NLCD 20-50	35×2	35	15	35×2	50	35	10	69	71	-	4	108	106.5	122
NLCD 20-75	60×2	60	19	35×3	54	70	10	108	96	-	4	147	145.5	161
NLCD 20-100	70×2	70	37	35×4	107	70	58	113	121	169	8	200	198.5	214
NLCD 20-125	70×3	70	41	38×5	155	76	70	155	146	223	8	254	252.5	268
NLCD 20-150	80×3	80	19	44×6	195	88	87	190	171	275	8	306	304.5	320

- 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 NLCD

## Dimensions NLCD 25

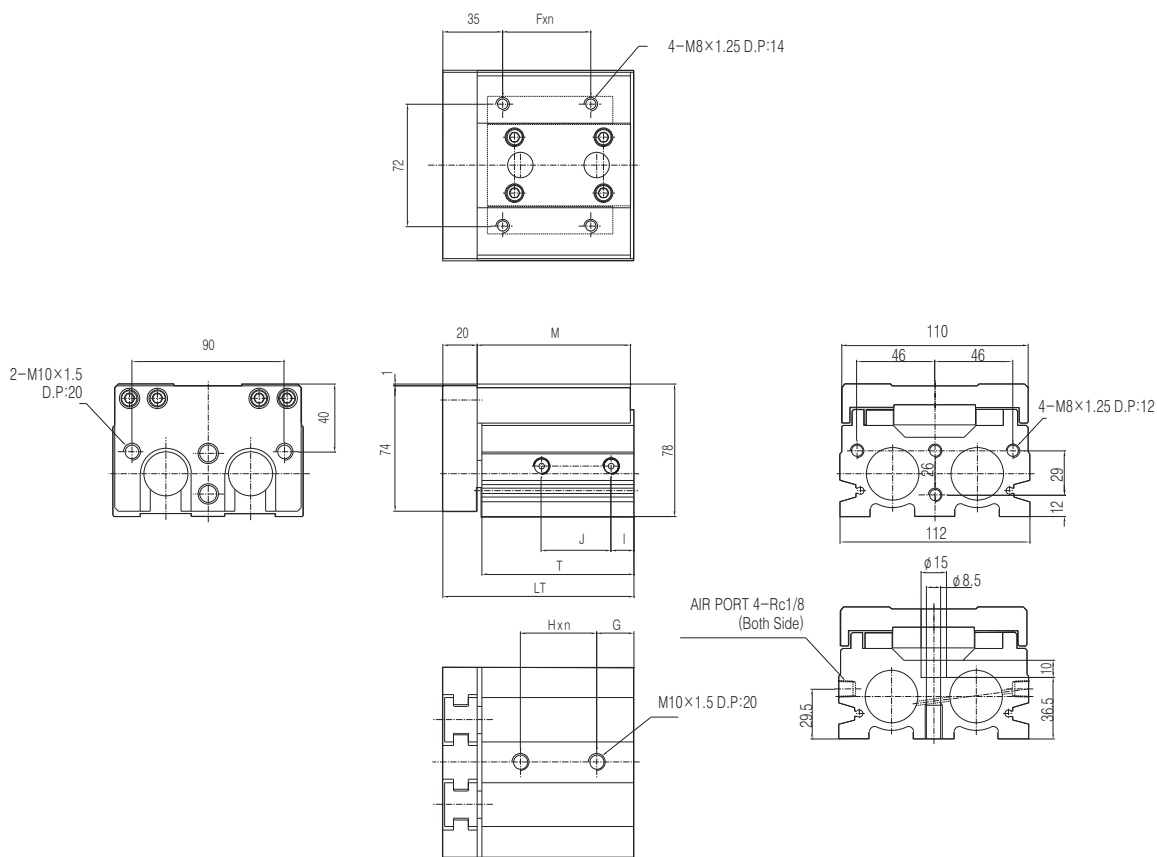
(Unit:mm)



Model	Fxn	FF	G	Hxn	GA	HA	I	J	L	LA	NA	N	T	LT
NLCD 25-10	50×1	40	22	45×1	22	45	12	47	35	-	4	92	90.5	108.5
NLCD 25-20	50×1	40	22	45×1	22	45	12	47	45	-	4	92	90.5	108.5
NLCD 25-30	50×1	40	22	45×1	22	45	12	47	55	-	4	92	90.5	108.5
NLCD 25-40	60×1	50	22	55×1	22	55	12	57	65	-	4	102	100.5	118.5
NLCD 25-50	35×2	35	20	35×2	55	35	12	70	75	-	4	115	113.5	131.5
NLCD 25-75	60×2	60	26	35×3	61	70	33	90	100	-	4	156	154.5	172.5
NLCD 25-100	70×2	70	32	35×4	102	70	50	114	125	162	8	197	195.5	213.5
NLCD 25-125	75×2	75	40	38×5	154	76	67	155	150	218	8	255	253.5	271.5
NLCD 25-150	80×3	80	30	40×6	190	80	82	180	175	258	8	295	293.5	311.5

# Series NLCD

## Dimensions NLCD 32



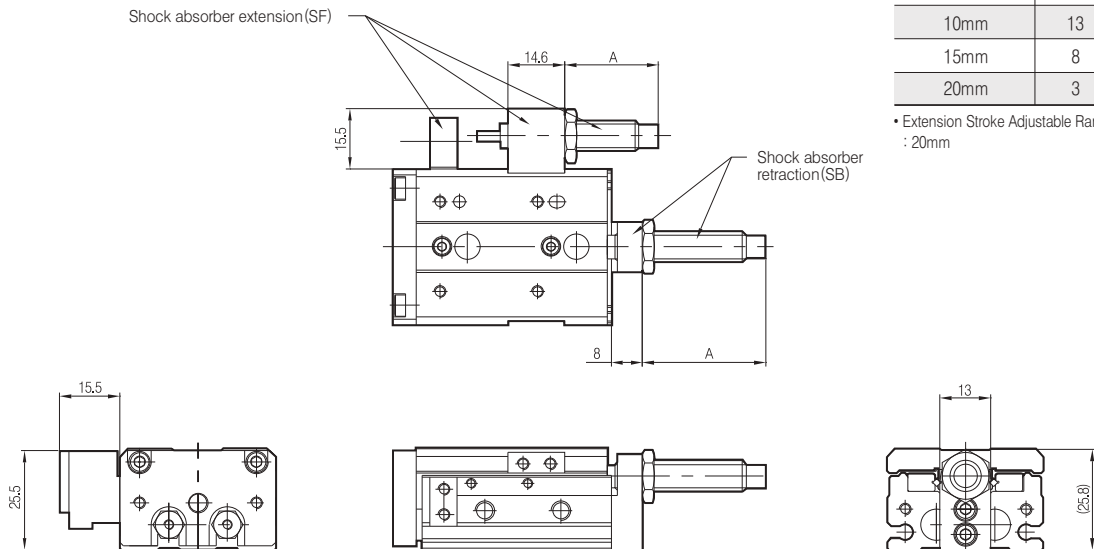
Type	Fxn	G	Hxn	I	J	M	T	LT
NLCD 32-30	52×1	22	45×1	13.5	41	90.5	89.5	112.5
NLCD 32-75	75×2	33	38×3	53	106	176	175	198
NLCD 32-100	64×2	42	50×3	73	131	221	220	243

- 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 NLCD

## Dimensions of Shock Absorber Option

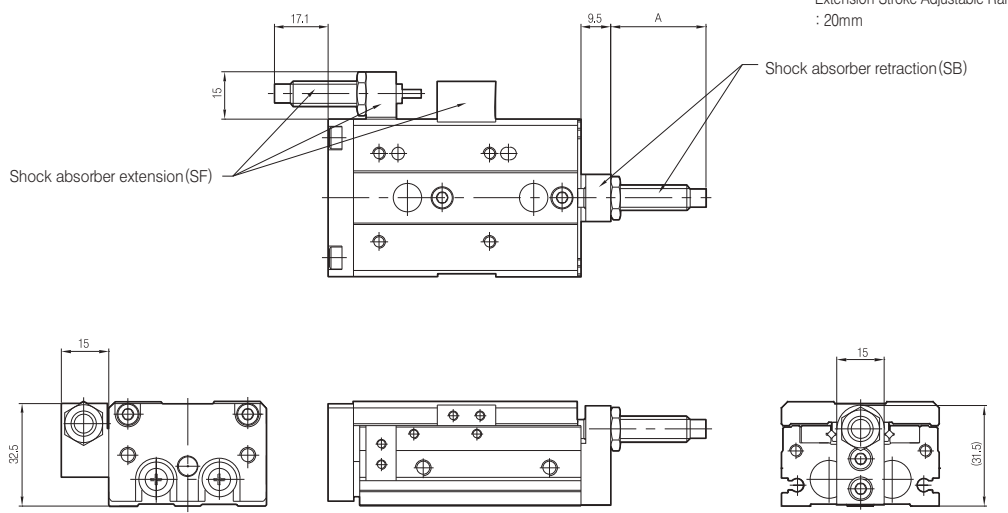
NLCD8-\*\*-SF,SB,S



Stroke Adjustable Range	A
5mm	18
10mm	13
15mm	8
20mm	3

• Extension Stroke Adjustable Range : 20mm

NLCD12-\*\*-SF,SB,S



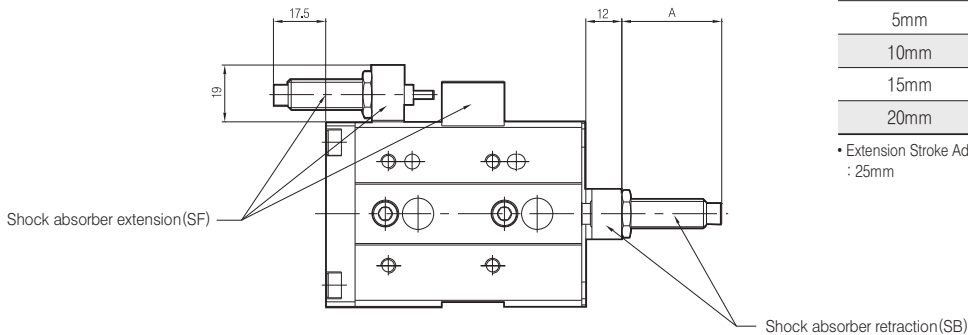
Stroke Adjustable Range	A
5mm	25
10mm	20
15mm	15
20mm	10

• Extension Stroke Adjustable Range : 20mm

# Series NLCD

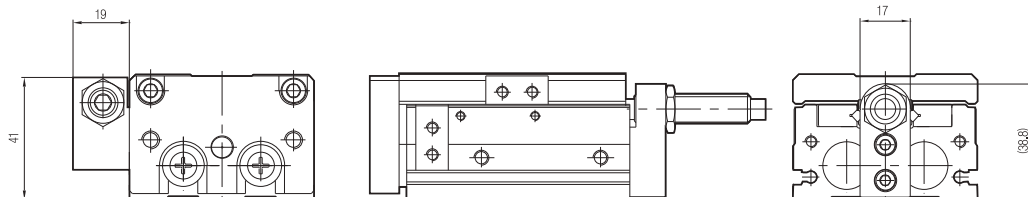
## Dimensions of Shock Absorber Option

### NLCD16-\*\*-SF,SB,S

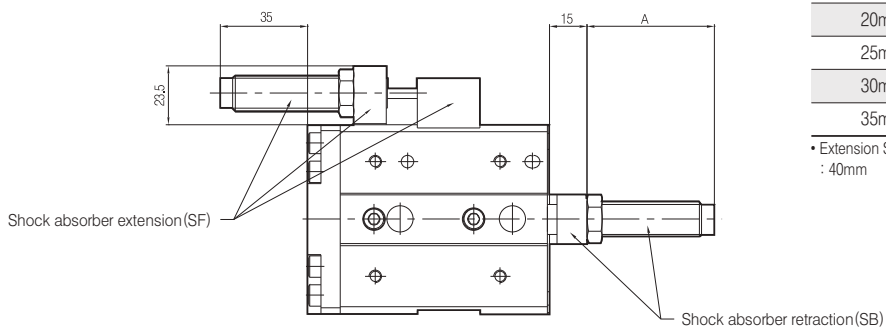


Stroke Adjustable Range	A
5mm	28.5
10mm	23.5
15mm	18.5
20mm	13.5

• Extension Stroke Adjustable Range : 25mm

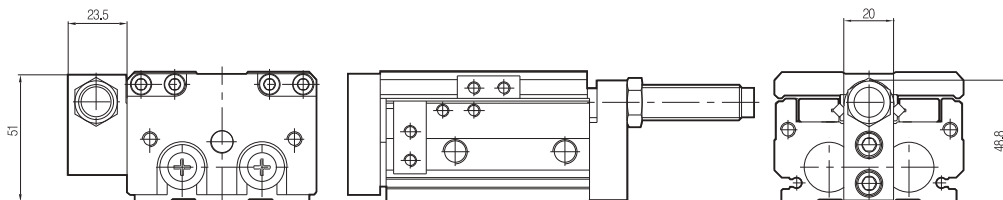


### NLCD20-\*\*-SF,SB,S



Stroke Adjustable Range	A
5mm	46
10mm	41
15mm	38
20mm	33
25mm	28
30mm	23
35mm	18

• Extension Stroke Adjustable Range : 40mm



- ACP
- APM
- AS
- AX
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- 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

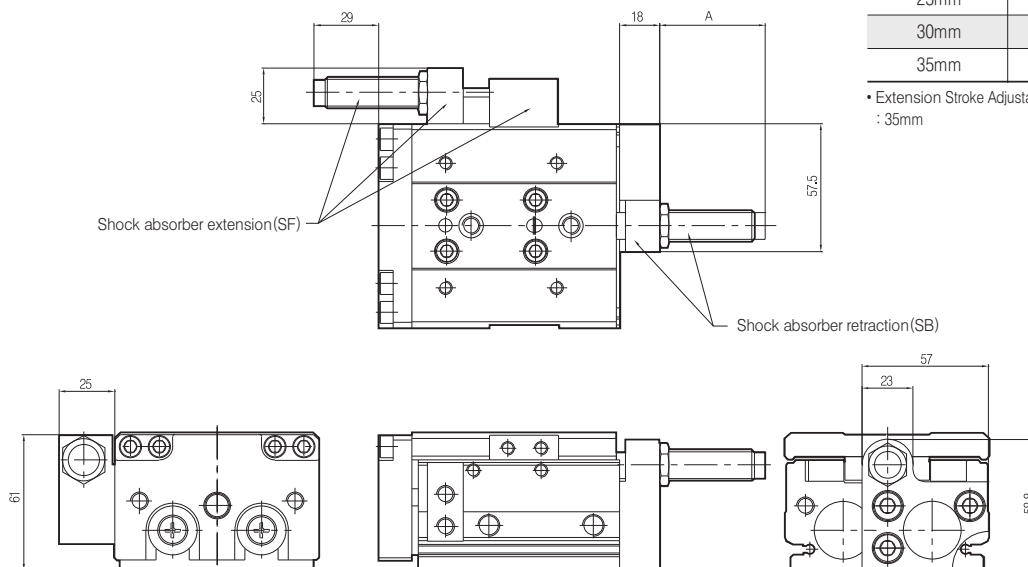
# Series NLCD

## Dimensions of Shock Absorber Option

NLCD25-\*\*-SF,SB,S

Stroke Adjustable Range	A
5mm	42.5
10mm	37.5
15mm	32.5
20mm	27.5
25mm	22.5
30mm	17.5
35mm	12.5

• Extension Stroke Adjustable Range : 35mm



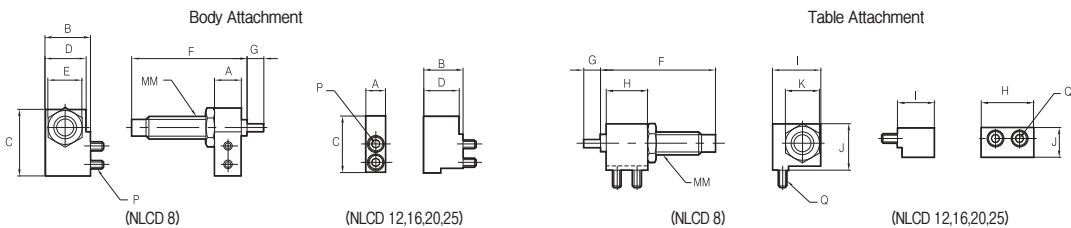
### Shock absorber Option

Shock absorber Type	S0806	S1007	S1412
Applicable Table Cylinder	NLCD8 / NLCD12	NLCD16	NLCD20/NLCD25
Max. Absorbing Energy	3	6	20
Absorbing Stroke(mm)	6	7	12
Max. Collision Speed(m/s)	0.3~2.5	0.3~3.5	0.3~5
Max. Operating Freq. (Cycle/min)	117	207	550
Max. Acceptable Spring Force	58.8	117.6	392
Ambient and Auid Temperature(°C)	-10~+80		
Weight(g)	17	28	70

# Series NLCD

## Dimensions of Shock Absorber Option

### Dimension of Shock Absorber Extension Unit Option



Size	Type	BODY Attachment						TABLE Attachment							
		A	B	C	D	E	F	G	H	I	J	K	P	Q	MM
NLCD08	NLCD 08-SF	7	14	20	12.5	-	40.6	6	14.6	17	16	11	M3×15	M3×20	M8×1
NLCD12	NLCD 12-SF	9.5	16	23.5	14.5	11	40.6	6	18.5	13	10.5	-	M3×15	M4×10	M8×1
NLCD16	NLCD 16-SF	11	20	31	18.5	12.7	47	7	21	15	13.5	-	M4×20	M4×15	M10×1
NLCD20	NLCD 20-SF	13	25	40.5	23.1	19	67	12	25	20	16	-	M5×25	M5×20	M14×1.5
NLCD25	NLCD 25-SF	16	28.5	49.5	24	19	67	12	33	22	18.5	-	M8×25	M6×25	M14×1.5

### Dimension of Shock Absorber Retraction Unit Option



Size	Type	BODY Attachment									
		A	B	C	D	D1	E	F	G	P	MM
NLCD08	NLCD 08-SB	13	8	24.5	-	-	11	40.6	6	M3×8	M8×1
NLCD12	NLCD 12-SB	15	9.5	31.5	-	-	11	40.6	6	M4×10	M8×1
NLCD16	NLCD 16-SB	17	12	38	-	-	12.7	47	7	M4×15	M10×1
NLCD20	NLCD 20-SB	20	15	48	-	-	14	67	12	M6×15	M14×1.5
NLCD25	NLCD 25-SB	57	18	58	23	39	14	67	12	M8×15	M14×1.5

## How to Order

**NLCD**    \*\*    —    \*\*    \*\*

1     
 2     
 3

**[1] Bore Size(φ mm)**

- 6 : φ 6
- 8 : φ 8
- 12 : φ 12
- 16 : φ 16
- 20 : φ 20
- 25 : φ 25

**[2] Stroke Adjuster**

- Rubber Damper
  - RF: Front Side Adjuster
  - RB: Back Side Adjuster
- Shock absorber Attachment
  - SF: Front Side Shock absorber Attachment
  - SB: Back Side Shock absorber Attachment

**[3] Adjustable Range**

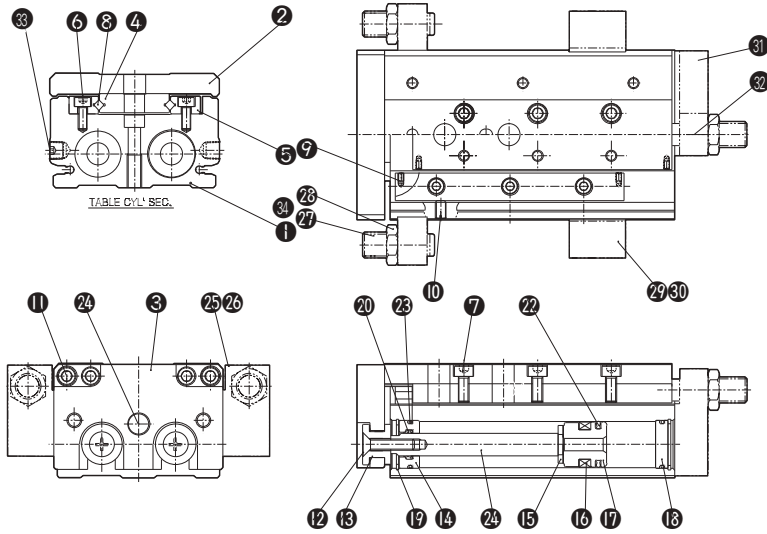
- Blank : 5mm : Standard, 15 : 15mm, 25 : 25mm
- \* NLCD6 : 25mm is not available.

- 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 NLCD

Structure

(Unit:mm)



No.	Description	Material	Note	No.	Description	Material	Note
1	Body	Alluminum Ally		18	Head Cover	Alluminum Ally	
2	Table	Alluminum Ally		19	O-Ring	Spring Steel	
3	Plate	Alluminum Ally		20	Rod Packing	NBR	
4	Center Rail	Bearing Steel		21	Piston Rod	Stainless Steel	
5	Support Rail	Bearing Steel		22	Piston Packing	NBR	
6	Blanking Plug	Stainless Steel		23	Gasket(O-Ring)	NBR	
7	Blanking Plug	Stainless Steel		24	Plate Bumper	Polyurethane	
8	Roller & Spacer	Bearing Steel/MC Nylon		25	Bumper Plate-1	Stainless Steel	Option
9	Set Screw	Stainless Steel		26	Blanking Plug	Stainless Steel	Option
10	Set Screw	Stainless Steel		27	Bumper Holder	Ally Steel	Option
11	Blanking Plug	Stainless Steel		28	Nut	Ally Steel	Option
12	(+)Flush Bolt	Stainless Steel		29	Bumper Plate-2	Alluminum Ally	Option
13	Retainer	Alluminum Ally		30	Blanking Plug	Stainless Steel	Option
14	Rod Cover	Alluminum Ally		31	Bumper Plate-3	Alluminum Ally	Option
15	Bumper	Rubber		32	Blanking Plug	Stainless Steel	Option
16	Magnet	NBR		33	Plug	Ally Steel	
17	Piston	Alluminum Ally		34	Plate Bumper	Polyurethane	

## Spare Parts/Seal Kits

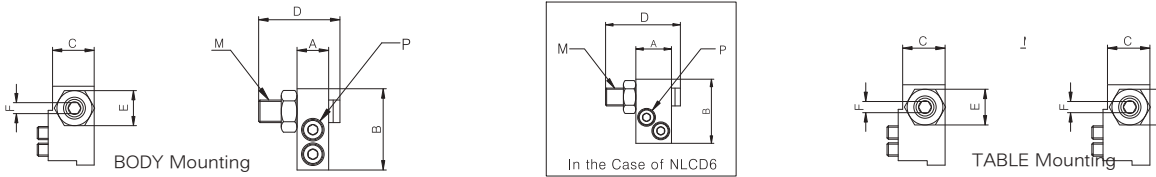
No.	Description	Material	Part No.						
			NLCD6	NLCD8	NLCD12	NLCD16	NLCD20	NLCD25	NLCD32
22	Piston Seal	NBR	OPA-6	PSD-8	PPD-12	PPD-16	PPD-20	PPD-25	PPD-32
20	Rod Seal	NBR	MYA-3	MYA-4	PPU-6	PPU-8	PPU-10	PPU-12	MYR-16
23	Tube Gasket	NBR	TC1P006-34A1693	TC2M020-16-1385	C-10	CA80-1609K	ADR020-16-1763	φ26.5×φ22.5×2T	C-29



# Series NLCD

## Stroke Adjuster at Extension End(RF)

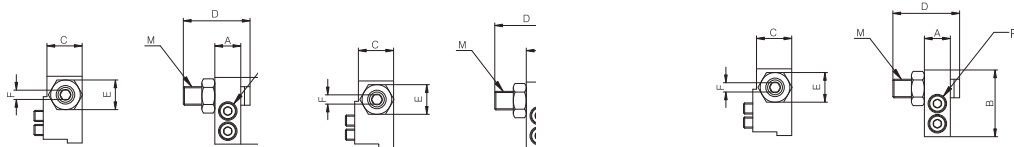
(Unit:mm)



Model	Model No.	Stroke adjusting Range(mm)	BODY Mounting								Table Mounting			
			A	B	C	D	E	F	M	P	H	I	J	Q
NLCD6	NLCD6-RF	5	10	18	10.5	21	8	2.5	M5×0.8	M2.5×10L	12.5	9	10	M2.5×10L
	NLCD6-RF15	15				31								
NLCD8	NLCD8-RF	5	7	20	14	16.5	10	3	M6×1.0	M3×15L	14.6	7.5	10	M3×12L
	NLCD8-RF15	15				26.5								
	NLCD8-RF25	25				36.5								
NLCD12	NLCD12-RF	5	9.5	23.5	16	20	12	4	M8×1.0	M3×15L	18.5	10.5	13	M3×15L
	NLCD12-RF15	15				30								
	NLCD12-RF25	25				40								
NLCD16	NLCD16-RF	5	11	31	20	24.5	14	5	M10×1.0	M4×20L	21	13.5	15	M4×15L
	NLCD16-RF15	15				34.5								
	NLCD16-RF25	25				44.5								
NLCD20	NLCD20-RF	5	13	40.5	25	27.5	17	6	M12×1.25	M5×25L	25	16	20	M5×20L
	NLCD20-RF15	15				37.5								
	NLCD20-RF25	25				47.5								
NLCD25	NLCD25-RF	5	16	49.5	26.5	32.5	19	6	M14×1.5	M8×25L	33	18.5	22	M6×25L
	NLCD25-RF15	15				42.5								
	NLCD25-RF25	25				52.5								

## Stroke Adjuster at Retraction End(RB)

(Unit:mm)



Model	Model No.	Stroke adjusting Range(mm)	BODY Mounting									
			A	B	C	D	E	F	G	H	J	K
NLCD6	NLCD6-RB	5	22	20.5	12.5	10	21	6.5	8	2.5	M2.5×6L	M5×0.8
	NLCD6-RB15	15					31					
NLCD8	NLCD8-RB	5	13	24.5	-	-	16.5	8	10	3	M3×8L	M6×1.0
	NLCD8-RB15	15					26.5					
	NLCD8-RB25	25					36.5					
NLCD12	NLCD12-RB	5	15	31.5	-	-	20	9.5	12	4	M4×10L	M8×1.0
	NLCD12-RB15	15					30					
	NLCD12-RB25	25					40					
NLCD16	NLCD16-RB	5	17	38	-	-	24.5	12	14	5	M4×15L	M10×1.0
	NLCD16-RB15	15					34.5					
	NLCD16-RB25	25					44.5					
NLCD20	NLCD20-RB	5	20	48	-	-	27.5	15	17	6	M6×15L	M12×1.25
	NLCD20-RB15	15					37.5					
	NLCD20-RB25	25					47.5					
NLCD25	NLCD25-RB	5	57	58	39	23	32.5	18	19	6	M8×15L	M14×1.5
	NLCD25-RB15	15					42.5					
	NLCD25-RB25	25					52.5					

## How to Order

NLCD \* \* - \* \* \* \*

1
2
3

① Bore size  
 6-∅6, 8-∅8  
 12-∅12, 16-∅16  
 20-∅20, 25-∅25

② Stroke Adjuster  
 -Rubber Damper  
 RF : Extension Stroke Adjuster  
 RB : Retraction Stroke Adjuster  
 -Shock Absorber  
 SF : Extension Stroke Adjuster  
 SB : Retraction Stroke Adjuster

③ Adjustable Range  
 Blank : 5mm Standard  
 15 : 15mm, 25 : 25mm  
 ※ NLCD6 : 25mm is not available.

ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

AQ2

ADQ

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

NLCD

NLCS

## Series NLCD

### How to Select

#### 1. The first ] Operation conditions

Calculation	Selecting example
<ul style="list-style-type: none"> <li>Model used</li> <li>Cushion Style</li> <li>Work mounting position</li> <li>Mounting position</li> <li>Average velocity <math>V_a</math> (mm/s)</li> <li>Allowable load <math>W</math> (kg)</li> <li>Over hang <math>L_n</math> (m) : Fig. 1</li> </ul> <p>From product until work gravity center distance</p>	<ul style="list-style-type: none"> <li>Cylinder : NLCD25-30</li> <li>Cushion : Rubber Cushion</li> <li>Work : Table mounting</li> <li>Mounting : Horizontal mounting</li> <li>Average velocity : <math>V_a=300</math>[mm/s]</li> <li>Load mass : <math>W=0.5</math>[kg]</li> <li>Qverhang : 0.035</li> </ul>

#### 2. Second ] Kinetic energy

<ul style="list-style-type: none"> <li>Calculate kinetic energy : <math>E</math>(J)  <math>E = 0.5 \times W \times (V/1000)^2</math>  <math>E_z = \gamma \times E_{max}</math> Table 3            Coefficient of velocity <math>\gamma</math> : Table 1            Kinetic energy(<math>E</math>) <math>\leq</math> Max. allowable kinetic energy</li> <li>Kinetic energy of work does not exceed allowable kinetic energy</li> </ul>	$E = 0.5 \times 0.5 \times (300 / 1000)^2 = 0.0225$ $E_z = 0.6 \times 0.25 = 0.15$ $E = 0.0225 \leq E_z = 0.15$ Possible to use by Kinetic energy( $E_a$ ) : Table 2 Max. allowable kinetic energy( $E_{max}$ ) : Table 3
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#### 3. Third ] Load factor of Load mass

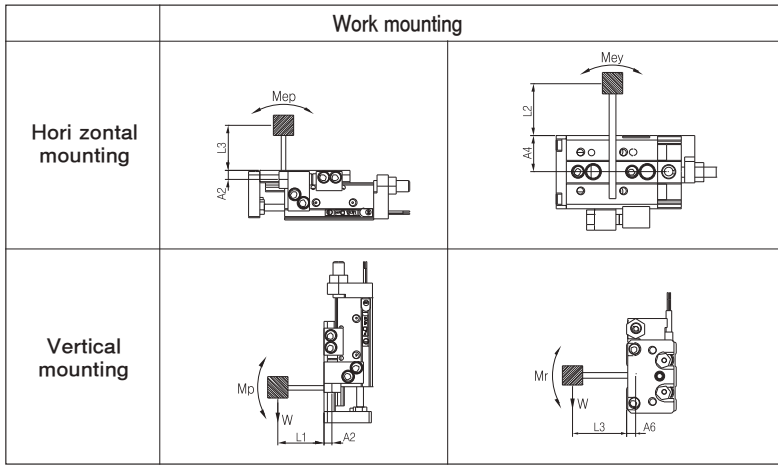
1) Load factor calculation of load mass (1) Calculate allowable load mass $W_a$ (kg) $W_a = \gamma \times W_{max}$ : Table 3 (2) Calculate Load mass load factor $X_1 = \gamma \times W / W_a$  2) Load factor of kinetic moment (1) Calculate kinetic moment $M_e$ (N.m) $M_e = 1/3 \times l_e \times 9.8 \times L_n$ Shock mass $l_e = \delta \times W \times V$ $\delta$ : Dumper coefficient - With urethane bumper(Standard) = 0.04 - With Shock absorber = 0.01  (2) Calculate allowable kinetic moment $M_{ea}$ (N.m) $W_m = \gamma \times M_{max}$ : Table 4  (3) Calculate load factor $X_2$ of kinetic moment $X_2 = M_e / W_m$ Coefficient of velocity $\gamma$ : Table 1	$M_e = 1/3 \times 6 \times 9.8 \times 0.035 = 0.686$ $l_e = 0.04 \times 0.5 \times 300 = 6. L_n = 0.035$  $W_m = 0.6 \times 27.54 = 16.524$  $X_2 = 0.686 / 16.524 = 0.041$ $\gamma = 0.6$
---	--

#### 4. Fourth ] Sum of load factor

When sum of load factor does not exceed 1, it is possible to use.  
 $\sum X_n = X_1 + X_2 \leq 1 = 0.08 + 0.041 = 0.121 \leq 1$  And it is possible to use.

# Series NLCD

**Fig. 1** Overhang : Ln(mm), from product until Work center distance



**Table 2** Max. allowable kinetic energy : Emax

Model	Allowable kinetic energy	
	Rubber bumper	Shock absorber
NLCD 6	0.02	0.04
NLCD 8	0.038	0.076
NLCD12	0.075	0.15
NLCD16	0.125	0.25
NLCD20	0.175	0.35
NLCD25	0.25	0.5
NLCD32	0.325	0.65

**Table 1** Coefficient of velocity :  $\gamma$

Average speed [mm/s]	Application coefficient
50~200	1.0
200	0.6

**Table 3** Max. allowable load mass : Wmax(kg)

Model	Max. allowable load mass
NLCD 6	0.8
NLCD 8	1.5
NLCD12	3
NLCD16	5
NLCD20	7
NLCD25	10
NLCD32	13

**Table 4** Max. allowable moment : Mmax(N.m)

Model	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
NLCD6	0.63	0.9	1.08	1.08	1.08	-	-	-	-
NLCD8	1.8	1.8	2.52	3.24	3.78	3.78	-	-	-
NLCD12	3.78	3.78	3.78	5.22	6.3	9	9	-	-
NLCD16	10.17	10.17	10.17	10.17	14.31	22.5	30.7	30.7	-
NLCD20	17.46	17.46	17.46	17.46	24.48	31.5	45.45	45.45	45.45
NLCD25	27.54	27.54	27.54	27.54	38.52	49.6	60.57	60.57	60.57
NLCD32	-	-	32.13	-	-	55.8	66.6	-	-

**Symbol**

Symbol	Definition	Symbol	Definition	Symbol	Definition	Symbol	Definition
An (n = 1~6)	Correction value of movement center distance(mm)	Ma (Map, May, Mar)	Allowable static movement(Pitch,Yaw,Roll)(N.m)	W	Static load(kg)	$\gamma$	Allowable movement coefficient
E	Kinetic energy(J)	Me (Mep, Mey)	Kinetic moment(Pitch,Yaw)(N.m)	Wa	Allowable static load(kg)	$\delta$	Damper coefficient
Ea	Allowable kinetic energy(J)	Mea (Meap, Meay)	Allowable kinetic movement(Pitch,Yaw)(N.m)	Me	Load equivalent to collision(kg)	k	Work mounting coefficient
Emax	Max. allowable kinetic energy(J)	Mmax (Mpmx, Mymax, Mmax)	Max. allowable kinetic movement(Pitch,Yaw,Roll)(N.m)	Wmax	Max. allowable static load(kg)		
Ln (n = 1~3)	Overhang (mm)	V	Collision speed(mm/s)	$\alpha$	Load rate		
M (Mp, My, Mr)	Static movement(Pitch,Yaw,Roll)(N.m)	Va	Average speed(mm/s)	$\beta$	Allowable static load coefficient		

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 NLCD

## Series NLCD / Precautions

### Selection

#### ⚠ Caution

Do not apply a load over the operating limit range.

### Mounting

#### ⚠ Caution

Do not scratch and dent mounting side of body, table and end plate.

The damage will result in a decrease in parallelism, vibration of guide and an increase in moving part resistance.

Avoid contact with the air slide table during operation.

Adjuster option creates additional pinch points which can cause injury to operator when table is moving.

Preventative measures, e. g. installation of a cover, should be taken to avoid such accidents.

### Precautions for Adjuster Option

#### ⚠ Caution

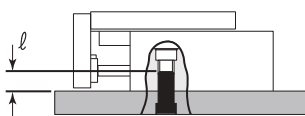
When stroke adjuster is adjusted, do not hit the table with wrench.

This can cause excessive play.

### Mounting

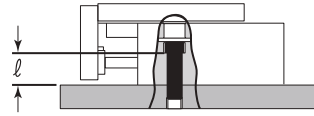
#### ⚠ Caution

##### 1. Lateral mounting (Body tapped)



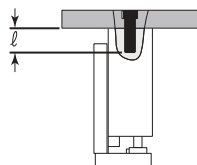
Model	Bolt	Max. Torque N.m(kg.cm)	Max. screw-in depth (l mm)
NLCD06	M4×0.7	2.1(21.4)	8
NLCD08	M4×0.7	2.1(21.4)	8
NLCD12	M5×0.8	4.4(44.9)	10
NLCD16	M6×1	7.4(75.5)	12
NLCD20	M6×1	7.4(75.5)	14
NLCD25	M8×1.25	18(180)	17
NLCD32	M10×1.55	40(408)	20

##### 2. Lateral mounting (Through)



Model	Bolt	Max. Torque N.m(kg.cm)	Max. screw-in depth (l mm)
NLCD06	M3×0.5	1.2(12.2)	9
NLCD08	M3×0.5	1.2(12.2)	11
NLCD12	M4×0.7	2.8(28.6)	15
NLCD16	M5×0.8	5.7(58.1)	17.5
NLCD20	M5×0.8	5.7(58.1)	26
NLCD25	M6×1	10(100)	33
NLCD32	M8×1.25	18(180)	36.5

##### 3. Axial mounting (Body tapped)

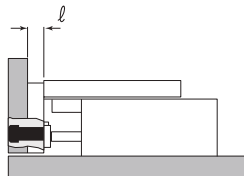


Model	Bolt	Max. Torque N.m(kg.cm)	Max. screw-in depth (l mm)
NLCD06	M2.5×0.45	0.5(5.1)	5
NLCD08	M3×0.5	0.9(9.2)	5
NLCD12	M4×0.7	2.1(21.4)	9
NLCD16	M5×0.8	4.4(44.9)	9
NLCD20	M5×0.8	4.4(44.9)	9
NLCD25	M6×1	7.4(75.5)	9
NLCD32	0.8×1.25	18(100)	10

### Mounting

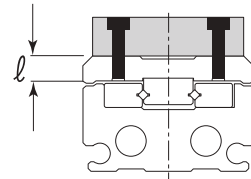
#### ⚠ Caution

##### 1. Front face mounting



Model	Bolt	Max. Torque N.m(kg.cm)	Max. screw-in depth (l mm)
NLCD06	M3×0.5	0.9(9.2)	5
NLCD08	M4×0.7	2.1(21.4)	6
NLCD12	M5×0.8	4.4(44.9)	8
NLCD16	M6×1	7.4(75.5)	10
NLCD20	M6×1	7.4(75.5)	13
NLCD25	M8×1.25	18(180)	15
NLCD32	M10×1.5	40(408)	20

##### 2. Top face mounting



Model	Bolt	Max. Torque N.m(kg.cm)	Max. screw-in depth (l mm)
NLCD06	M3×0.5	0.9(9.2)	5
NLCD08	M3×0.5	0.9(9.2)	5.5
NLCD12	M4×0.7	2.1(21.4)	7
NLCD16	M5×0.8	4.4(44.9)	9
NLCD20	M5×0.8	4.4(44.9)	9.5
NLCD25	M6×1	7.4(75.5)	11.5
NLCD32	M8×1.25	18(180)	14

### Precautions for Adjuster Option

#### ⚠ Caution

Model	Tightening Torque N.m(kg.cm)
NLCD06	3.0 (30.6)
NLCD08	5.0 (51.0)
NLCD12	12.5 (128)
NLCD16	25.0 (255)
NLCD20	43.0 (439)
NLCD25	69.0 (704)
NLCD32	-