

DMSDG

Compact guided



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DMSDG Series variation

Actuator model No.	Motor Size	Spring lead (mm)	Stroke and Max. speed (mm/s)			Max. Pressing force (N)
			10	20	30	
DMSDG-08	☐ 20	3.3	50			10
DMSDG-16	☐ 28	5.1	77			30



Electric actuator Compact guided

DMSDG-08

☐ 20 Stepping motor



How to order

DMSDG - 08 S H3 10 F3PH - T R1 A 1

1Size

088

2Applicable controller * 1

SESC4

3Spring lead

H33.3 mm

4Stroke

1010 mm

2020 mm

3030 mm

5Switch

NNNNNone

F3PHF-type straight

F3PVF-type L-shaped type

6Connector leadout direction * 2

TTop

BBottom

RRight surface

LLeft surface

7Relay cable *3

N0None

R1Movable 1 m

R3Movable 3 m

R5Movable 5 m

RXMovable 10 m

8Controller included

NNone

ADIN rail mounting specifications

BPanel mounting specifications

9IO cable length

NNone

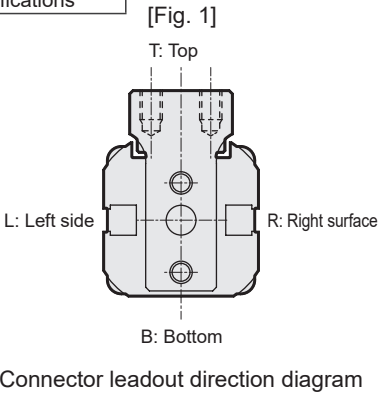
11 m

33 m

55 m

X10 m

*1 For controller, refer to CC-1635A.
*2 Refer to Figure 1.
*3 Refer to page 104 for relay cable dimensions.

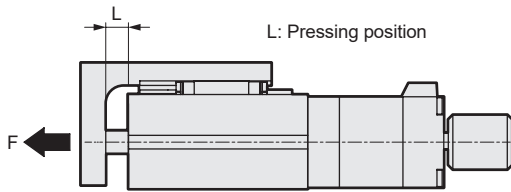


Specifications

Motor	☐ 20 Stepping motor		
Drive method	Coil spring		
Stroke mm	10	20	30
Pressing effective range (L) mm	5	5 to 15	5 to 25
Spring lead	H3 (3.3 mm)		
Maximum pressing force *1 *2 N	10		
Static allowable moment N·m	MP=0.16, MY=0.16, MR=0.24		
Max. load capacity g	Horizontal		270
	Vertical		80
Operation speed range mm/s	8 to 50		
Max. acceleration/deceleration mm/s ²	982 (Setting 9)		
Pressing speed range *1 mm/s	8 to 50		
Insulation resistance	10MΩ, 500 VDC		
Withstand voltage	500 VAC for 1 minute		
Operating ambient temperature, humidity	0 to 40 °C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity	-10 to 50°C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere	No corrosive gas, explosive gas, or dust		
Degree of protection	IP40		

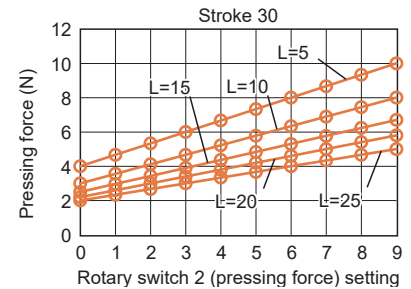
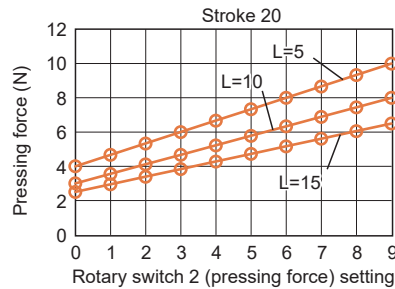
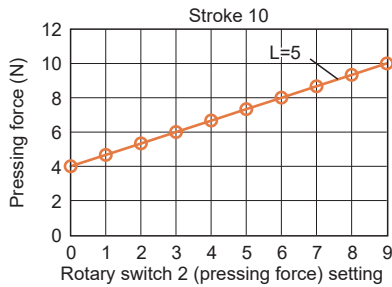
*1 Pressing operation is possible only with PUSH. If a pressing operation is performed at PULL, the actuator internal parts may be damaged.
*2 Pressing position L=5 mm
*3 When installed vertically, the pressing force, Positioning time and stop position will change compared to the horizontal direction. Contact CKD for details.

Pressing force and rotary switch setting



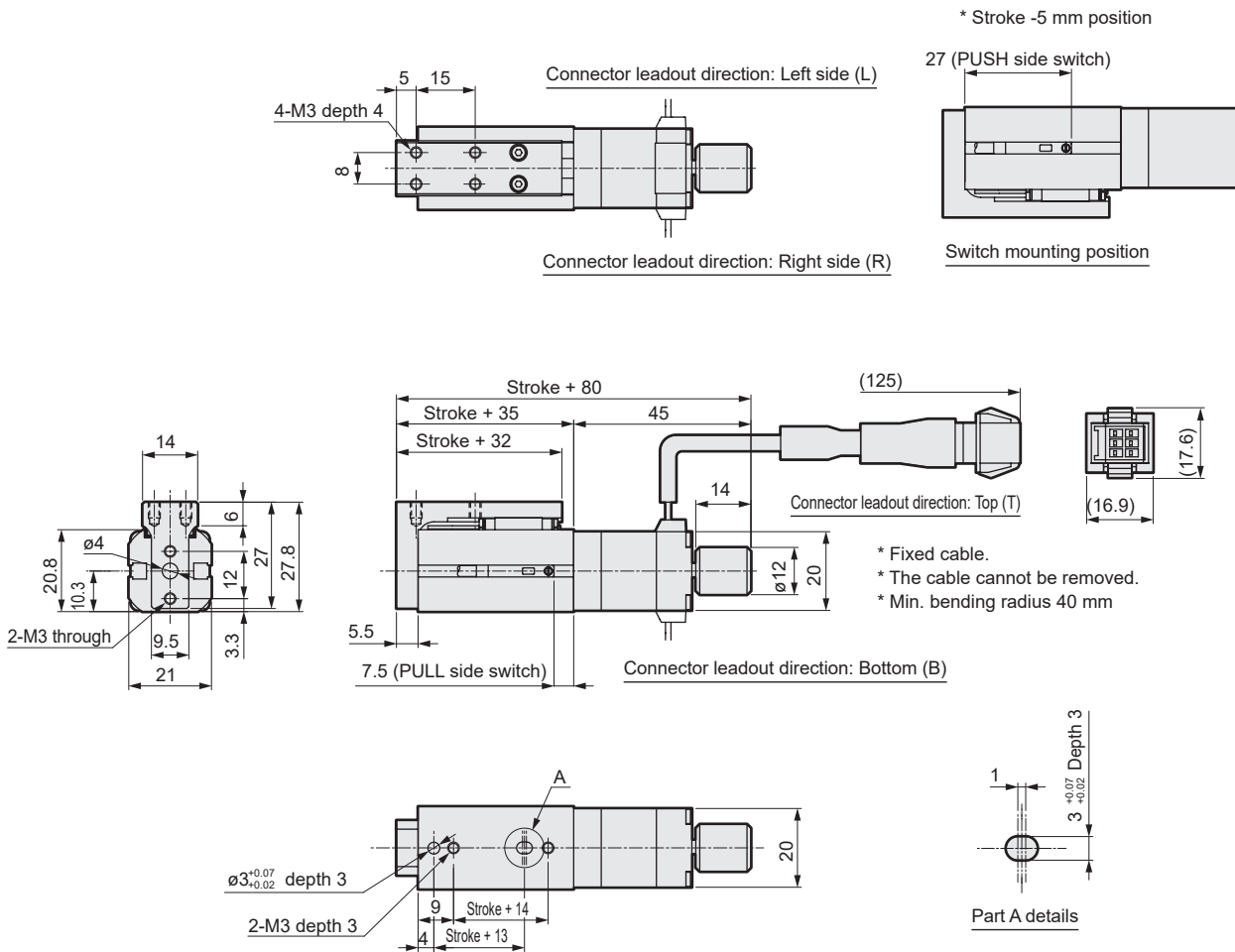
*1 Pressing force is a guideline. Errors may occur due to pressing position or cylinder switch adjustment.

*2 This product does not support self-lock. Contact CKD if self-lock is required.



Dimensions

● DMSDG-08



Stroke (mm)	10	20	30
Weight (g)	110	130	140



Electric actuator Compact guided

DMSDG-16

☐ 28 Stepping motor



How to order

DMSDG - 16 S H5 10 F3PH - T R1 A 1

1 Size

16	16
----	----

2 Applicable controller * 1

S	ESC4
---	------

3 Spring lead

H5	5.1 mm
----	--------

4 Stroke

10	10 mm
20	20 mm
30	30 mm

5 Switch

NNNN	None
F3PH	F-type straight
F3PV	F-type L-shaped type

7 Relay cable * 3

N0	None
R1	Movable 1 m
R3	Movable 3 m
R5	Movable 5 m
RX	Movable 10 m

6 Connector leadout direction * 2

T	Top
B	Bottom
R	Right surface
L	Left surface

8 Controller included

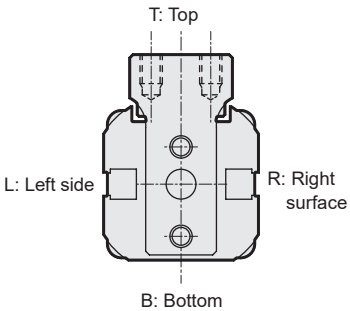
N	None
A	DIN rail mounting specifications
B	Panel mounting specifications

9 IO cable length

N	None
1	1 m
3	3 m
5	5 m
X	10 m

*1 For controller, refer to CC-1635A.
*2 Refer to Figure 1.
*3 Refer to page 104 for relay cable dimensions.

[Fig. 1]



Connector leadout direction diagram

Specifications

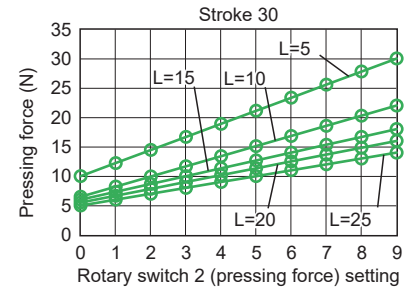
Motor	☐ 28 Stepping motor		
Drive method	Coil spring		
Stroke mm	10	20	30
Pressing effective range (L) mm	5	5 to 15	5 to 25
Spring lead	H5 (5.1 mm)		
Maximum pressing force *1 *2 N	30		
Static allowable moment N·m	MP=0.57, MY=0.57, MR=1.16		
Max. load capacity g	Horizontal	800	
	Vertical	800	
Operation speed range mm/s	13 to 77		
Max. acceleration/deceleration mm/s ²	2259 (Setting 9)		
Pressing speed range *1 mm/s	13 to 77		
Insulation resistance	10MΩ, 500 VDC		
Withstand voltage	500 VAC for 1 minute		
Operating ambient temperature, humidity	0 to 40 °C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity	-10 to 50°C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere	No corrosive gas, explosive gas, or dust		
Degree of protection	IP40		

*1 Pressing operation is possible only with PUSH. If a pressing operation is performed at PULL, the actuator internal parts may be damaged.
*2 Pressing position L=5 mm
*3 When installed vertically, the pressing force, Positioning time and stop position will change compared to the horizontal direction. Contact CKD for details.

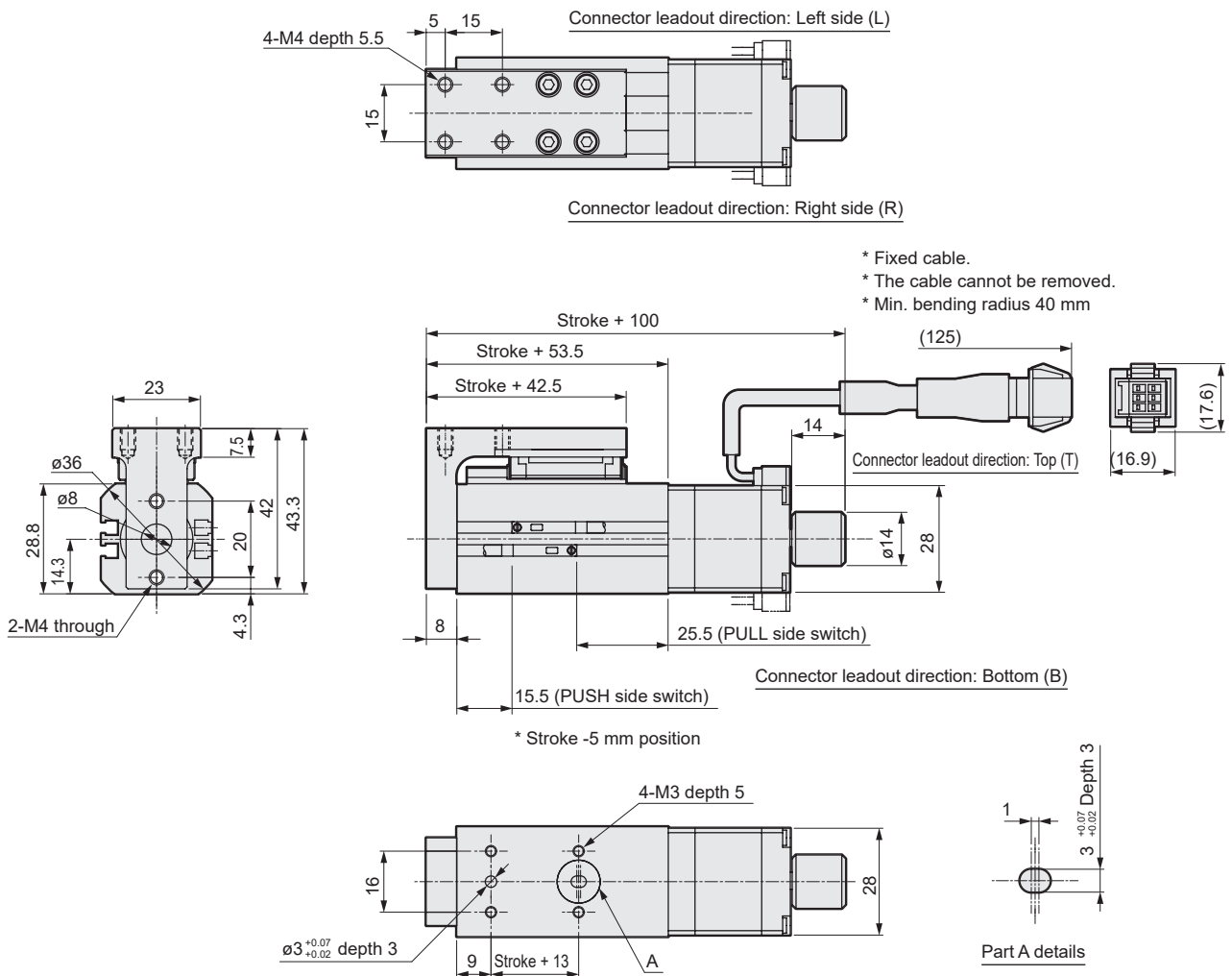
L: Pressing position

F

*2 This product does not support self-lock. Contact CKD if self-lock is required.



● DMSDG-16

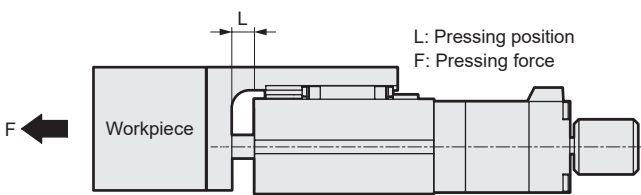


Stroke (mm)	10	20	30
Weight (g)	290	310	330

Model selection

STEP 1 Confirm conditions

①Check the pressing force and ②pressing position conditions.



STEP 2 Model Selection

①Select a model from the table below according to the pressing force and ②pressing position required.

Model selection list

Model	①Maximum pressing force F	②Pressing position L (pressing effective range)		
		5 mm	5 to 15 mm	5 to 25 mm
DMSDG-08SH3	10 N	Stroke: 10 mm	Stroke: 20 mm	Stroke: 30 mm
DMSDG-16SH5	30 N	Stroke: 10 mm	Stroke: 20 mm	Stroke: 30 mm

STEP 3 Confirmation of pressing force and rotary switch setting

Select the graph of the selected model and confirm the setting of the rotary switch from the ①pressing force and ②pressing position.

[Example of selection guide]

STEP 1

- ①Required pressing force 15 N
- ②Pressing position L 15 mm

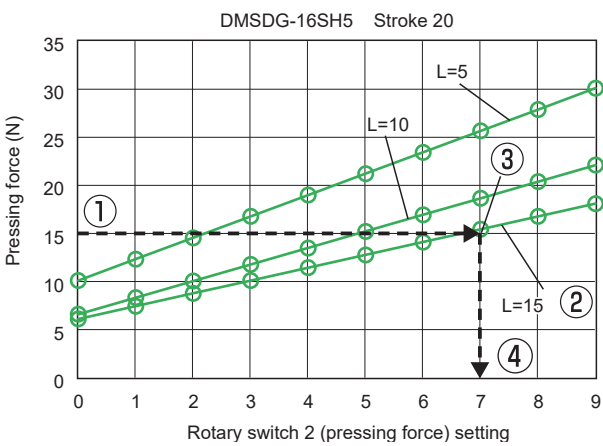
STEP 2

For models that satisfy item ① in the model selection list,
DMSDG-16SH5 stroke 20 mm

STEP 3

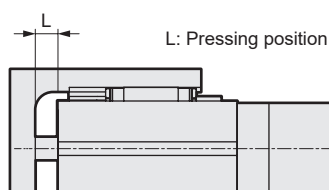
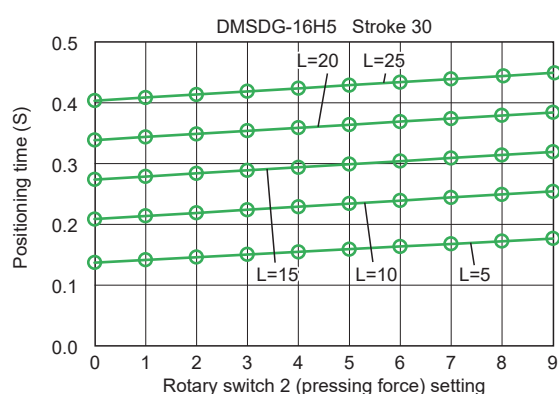
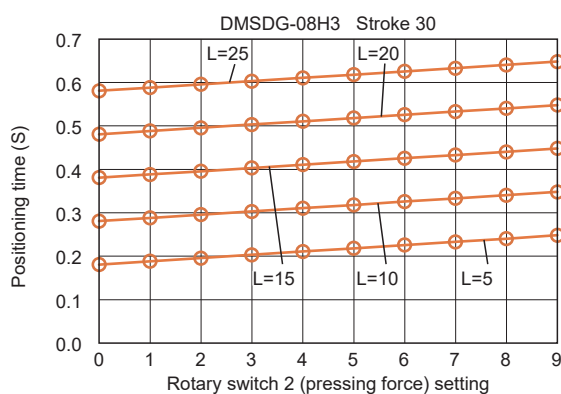
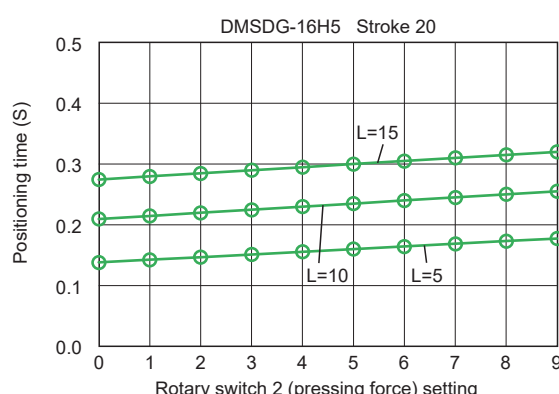
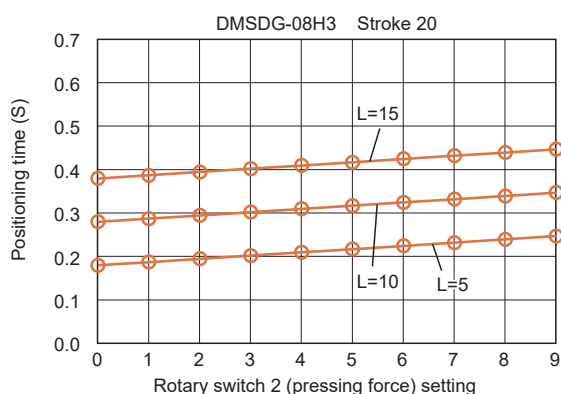
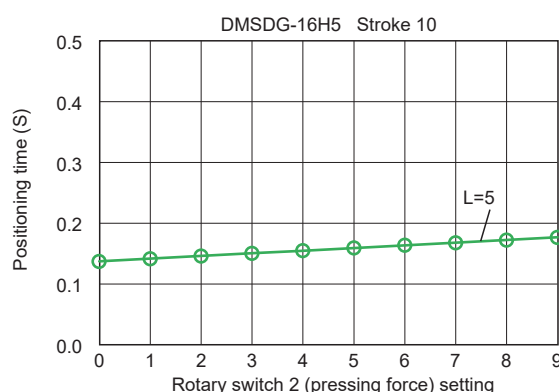
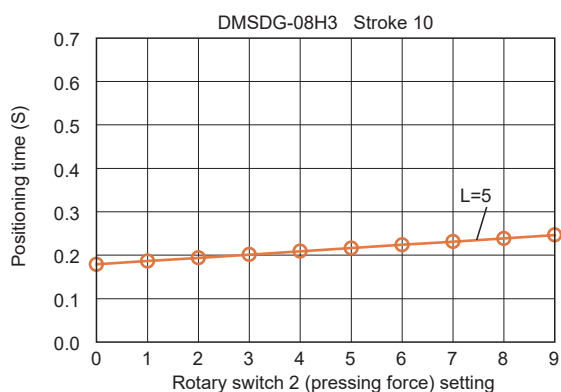
Check ③ in the graph of the pressing force and rotary switch setting
(pages 71 and 73) of the model selected in STEP 2, and confirm
that the rotary switch setting is 7 or more and that the pressing
force is satisfied.

From the above, **DMSDG-16SH520*** can be selected.



Confirming positioning time

Check the graph to see if the Positioning time of the selected product matches the required tact.



- *1 Positioning time is the time from the start of motor rotation to the stop time. Value when
- *2 Rotary switch 1 (speed) = 9. Position of start of movement is the value when L = 0. Refer to the instruction manual for other conditions.

DSSD2	D Series (Screw drive)	DSSD2	D Series (Screw drive)
DSTK	D Series (Screw drive)	DSTK	D Series (Screw drive)
DSTG	D Series (Screw drive)	DSTG	D Series (Screw drive)
DSTS	D Series (Screw drive)	DSTS	D Series (Screw drive)
DSTL	D Series (Screw drive)	DSTL	D Series (Screw drive)
DMSDG	D Series (Spring drive)	DMSDG	D Series (Spring drive)
DLSH	D Series (Spring drive)	DLSH	D Series (Spring drive)
DCKW	D Series (Spring drive)	DCKW	D Series (Spring drive)
ESC3	ESC3 (Controller)	ESC3	ESC3 (Controller)
GSSD2	G Series	GSSD2	G Series
GSTK	G Series	GSTK	G Series
GSTG	G Series	GSTG	G Series
GSTS	G Series	GSTS	G Series
GSTL	G Series	GSTL	G Series
GCKW	G Series	GCKW	G Series
ECG-A	ECG-A (Controller)	ECG-A	ECG-A (Controller)
ECG-B	ECG-B (Controller)	ECG-B	ECG-B (Controller)
Safety	Safety	Safety	Safety
Caution	Caution	Caution	Caution
Model selection	Model selection	Model selection	Model selection
Check sheet	Check sheet	Check sheet	Check sheet

STEP 4 Confirming static moment

Calculate the load and moment that are generated when the table is stopped.

- When there is only one load mounting direction, check that the calculated value is within the tolerance value (Table 1).
- If there are more than one load mounting directions (for combined moment), check that the resultant moment (MT) is as follows (the following formula is satisfied) according to the formula below.

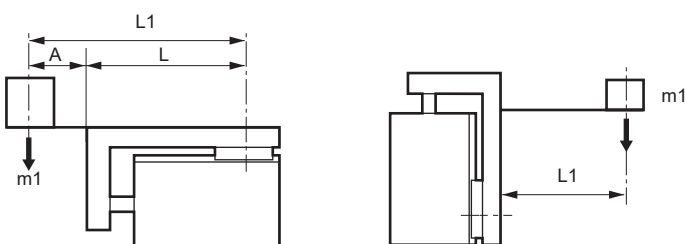
$$M_T = \frac{MP}{MP_{\max}} + \frac{MR}{MR_{\max}} + \frac{MY}{MY_{\max}} \leq 1.0$$

Table 1 Allowable moment in operation (N·m)

Size	MP	MR	MY
08	0.16	0.24	0.16
16	0.57	1.16	0.57

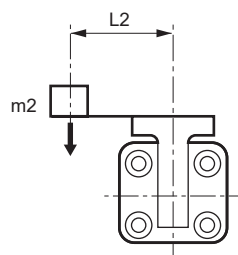
- Bending moment: MP

$$MP \text{ (N·m)} = 10 \times m1 \text{ (kg)} \times L1 \text{ (m)}$$



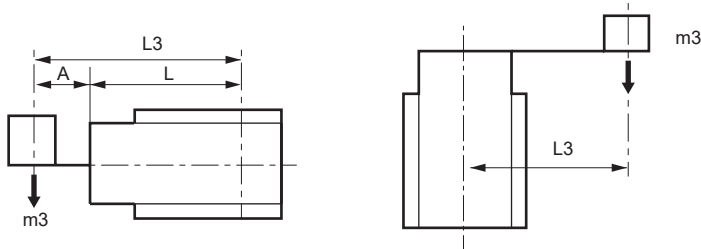
- Radial moment: MR

$$MR \text{ (N·m)} = 10 \times m2 \text{ (kg)} \times L2 \text{ (m)}$$



- Torsion moment: MY

$$MY \text{ (N·m)} = 10 \times m3 \text{ (kg)} \times L3 \text{ (m)}$$



L value

Size	Stroke (mm)		
	10	20	30
08	0.033	0.043	0.053
16	0.038	0.048	0.058

STEP 5 Confirming moment caused by inertia loads

Depending on the mounting direction, moment caused by inertia load may be applied. Calculate the moment caused by inertia load and confirm that it is less than or equal to the allowable value.

Table 2 Allowable moment when inertia load is applied (N·m)

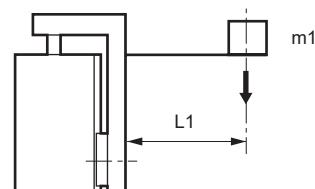
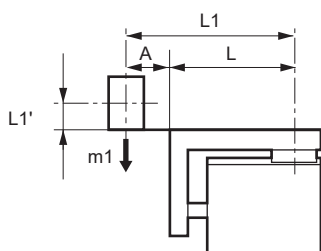
Size	MP'	MR'	MY'
08	0.33	—	0.33
16	1.11	—	1.11

Inertia load does not work in the *MR.' direction.

● bending moment: MP'

$$MP' = 10 \times m1 \times (L1 + G \times L1')$$

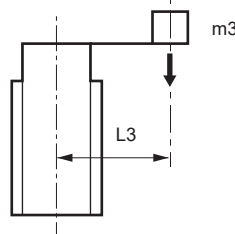
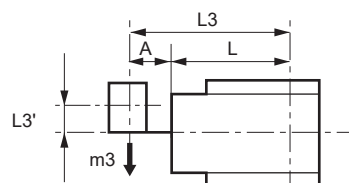
$$MP' = 10 \times m1 \times L1 \times (1 + G)$$



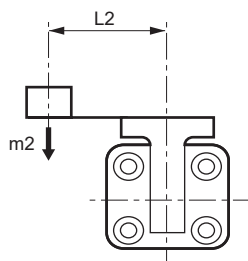
● Torsion moment: MY'

$$MY' = 10 \times m3 \times (L3 + G \times L3')$$

$$MY' = 10 \times m3 \times L3 \times (1 + G)$$



$$MY' = 10 \times m2 \times G \times L2$$



[Switch setting and acceleration]

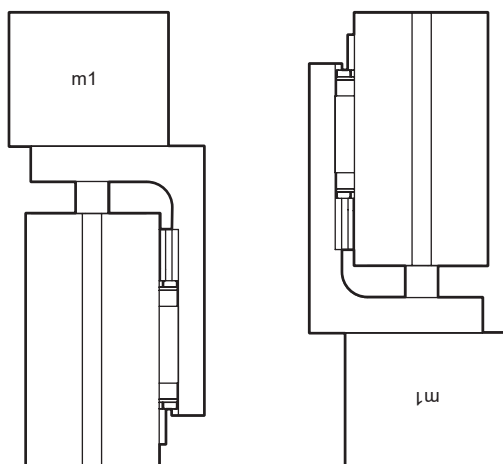
Speed setting (Switch 1)	Size 08		Size 16	
	Speed (mm/s)	Acceleration (G)	Speed (mm/s)	Acceleration (G)
0	8	0.00	13	0.00
1	13	0.01	20	0.01
2	18	0.01	27	0.03
3	22	0.02	34	0.05
4	27	0.03	41	0.07
5	31	0.04	49	0.09
6	36	0.06	56	0.12
7	41	0.07	63	0.16
8	45	0.09	70	0.20
9	50	0.11	77	0.23

*When the gripping setting (switch 2) is 9

STEP 6

Confirming allowable applied load

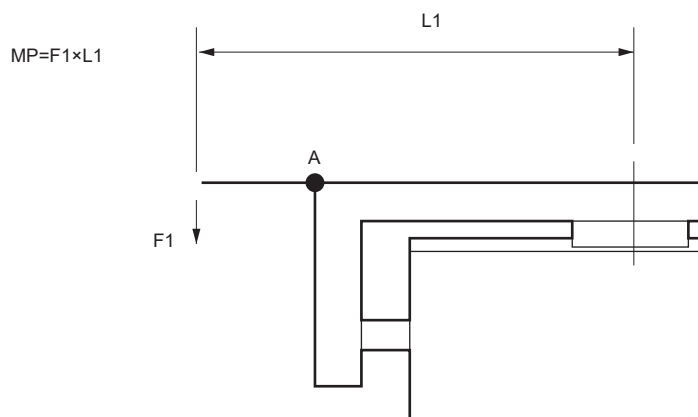
Check that the applied load is within the following allowable load value when mounting in the vertical direction.



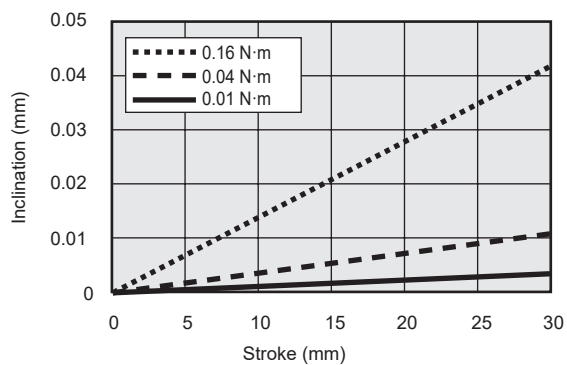
Size	[N]	
	Vertical upward	Vertical downward
08	10	8
16	20	10

Table inclination (reference value)

● Table deflection at point A due to bending moment MP



● DMSDG-08



● DMSDG-16

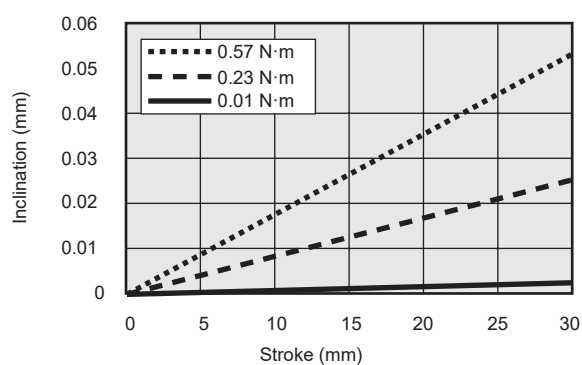
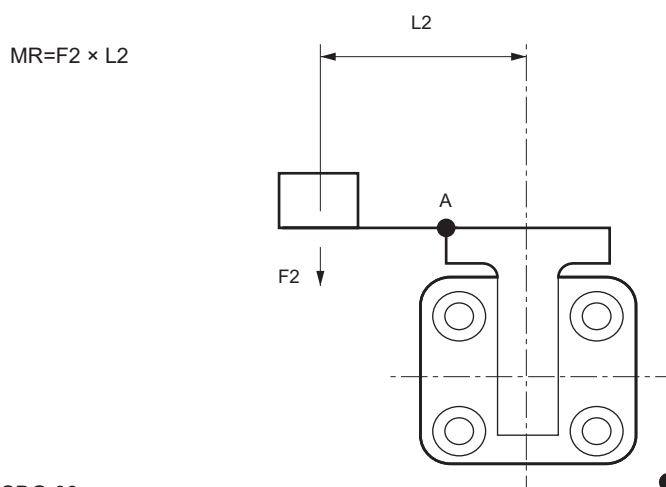
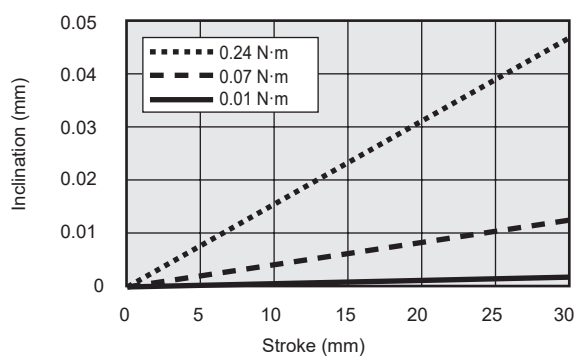


Table inclination (reference value)

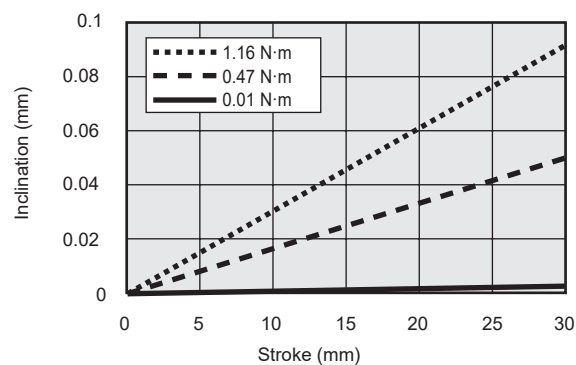
- Table deflection at point A due to radial moment MR.



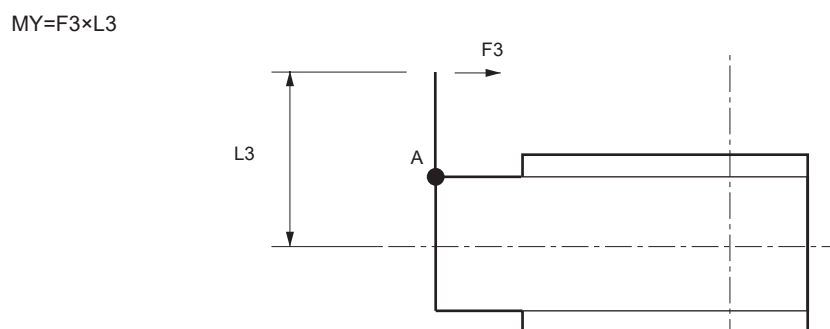
● DMSDG-08



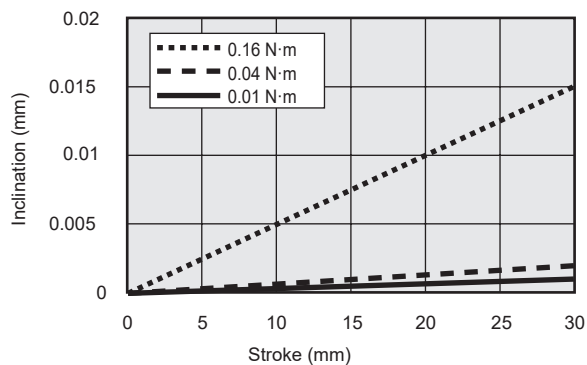
● DMSDG-16



- Table deflection at point A due to torsion moment MY



● DMSDG-08



● DMSDG-16

