GSSD2

Rod Type

Electric Actuator with Motor Specification

CONTENTS

Product Introduction	328
●Specifications, Model No. Notation, External Dimension Drawings	
· GSSD2-20	332
· GSSD2-32	334
· GSSD2-50	336
●Model Selection	338
⚠ Precautions for Use	404
Model Selection Check Sheet	408

GSSD2 System Table

Actuator Model No.	Motor Size	Screw Lead (mm)	Max. Payload (kg)		Stroke (mm) and Max. Speed (mm/s)					Max. Pushing Force (N)
			Horizontal	Vertical	20	25	50	75	100	
GSSD2-20	□35	6	4.4	6.4	250		250			100
		9	3.2	4	400		400	300		70
GSSD2-32	□42	6	9	11.6		250				220
		12	4.8	4.8		500				90
GSSD2-50	□56	6	14.8	19.6		250		200		590
		12	14.8	13.2		400		350		425

Electric Actuator Rod Type

GSSD2-20

□35 Stepping Motor

For compatible detailed model Nos., please see our website.

Model No. Notation Method

GSSD2 - 20 ❶ G ❷ E ❸ - 06 ❹ 020 ❺ B ❻ B ❼ N ❽ - R01 ❽ - ○ ❾ - ❿ - ○ ⓫

❶Size

20	20

❷Connected Controller *1

G	ECMG/ECG-A

❸Motor Mounting Direction

E	Inline Mount

❹Screw Lead

06	6 mm
09	9 mm

❺Stroke

020	20 mm
050	50 mm
075	75 mm
100	100 mm

❻Brake *2

N	None
B	Yes

❼Encoder

B	Absolute Encoder
C	Incremental Encoder

❽Relay Cable *3

N00	None
R01	Flexible 1 m
R03	Flexible 3 m
R05	Flexible 5 m
R10	Flexible 10 m
S01	Fixed 1 m
S03	Fixed 3 m
S05	Fixed 5 m
S10	Fixed 10 m

❾Option

Blank	Rod end female thread
N	Rod end male thread

❿Mounting bracket

Blank	Without mounting bracket
FA	Rod Side Flange

⓫Accessories *4
(When rod end male thread N is selected)

Blank	No accessories
I	Single Knuckle
Y	Double-knuckle

*1 For controllers, please refer to P. 529.
*2 Select "Yes" for vertical use.
*3 For the external dimension drawing of the relay cable, please refer to P. 576.
*4 Single-knuckle: SSD2-I-20, Double-knuckle: SSD2-Y-20. For the external dimension drawing, please refer to "Pneumatic Cylinder ② (RJ-003AA)".

Specifications

Connected Controller		ECMG, ECG-A	
Motor		□35 Stepping Motor	
Encoder Type		Battery-less Absolute Encoder Incremental Encoder	
Drive Method		Sliding screw ø6	
Stroke	mm	20 to 100	
Screw lead	mm	6	9
Max. Payload kg *1 *2	Horizontal	4.4	3.2
	Vertical	6.4	4
Operating Speed Range *3	mm/s	10 to 250	12 to 400
Max. Acceleration/ Deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Max. Pushing Force	N	100	70
Pushing Operation Speed Range	mm/s	10 to 20	12 to 20
Repeatability *4	mm	±0.01	
Lost Motion	mm	0.3 or less	
Brake	Type	Non-excitation operating type	
	Holding Force N	140	93
Insulation Resistance		10 MΩ, 500 VDC	
Withstanding 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	
Protection Structure		IP40	

*1 Payload varies depending on acceleration/deceleration and speed.
*2 When transporting, please use an external guide in combination.
*3 Maximum speed may decrease depending on conditions.
*4 Since there is backlash, if stopping accuracy is required, please use an external stopper, etc., and complete positioning with a pushing motion.

Speed and Payload

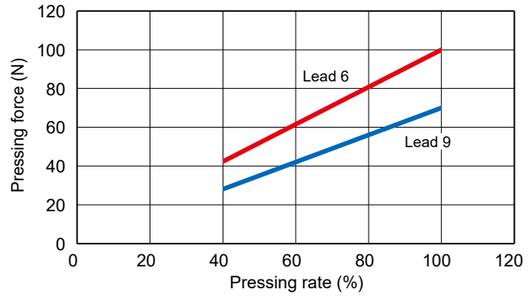
[Horizontal Installation] (kg)

Speed (mm/s)	Acceleration/Deceleration 0.3/0.7 G			
	Screw Lead			
	6 mm		9 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
10	0.8	0.3		
12	0.8	0.3	1.5	1.1
50	4.4	3.9	3.2	2
70	4.4	3.9	3.2	2.7
100	4.4	3.9	3.2	2.7
150	4.4	3.9	3.2	2.7
200	2	1.5	3.2	2.7
250	2	1.5	2.4	1.9
300			0.4	1.9
350			0.4	
400			0.4	

[Vertical Installation] (kg)

Speed (mm/s)	Acceleration/deceleration 0.3G			
	Screw Lead			
	6 mm		9 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
10	6.4	5.9		
12	6.4	5.9	4	3.5
50	6.4	5.9	4	3.5
70	4	3.5	4	3.5
100	4	3.5	4	3.5
150	1.6	1.1	3.2	2.7
200	0.8	0.3	3	2.7
250			0.8	0.3
300			0.8	0.3
350			0.4	
400				

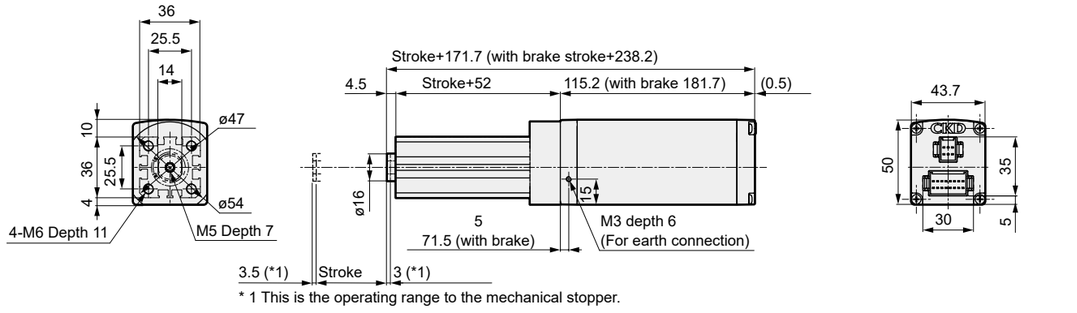
Pushing Force



* The upper pushing force is a reference value. It may vary depending on conditions such as pushing speed.

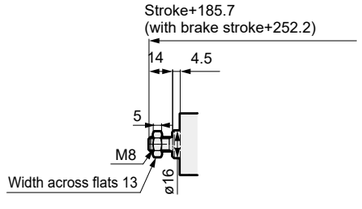
External Dimension Drawing

● GSSD2-20

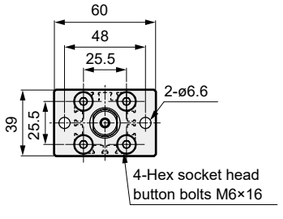


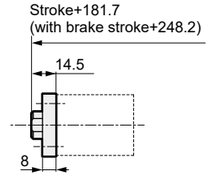
* 1 This is the operating range to the mechanical stopper.

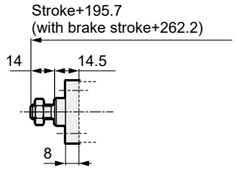
● Rod end male thread part



● Rod Side Flange (FA)







[Dimension Table by Stroke]

Stroke Code		020	050	075	100
Stroke (mm)		20	50	75	100
Weight (kg)	Without Brake	0.8	0.9	1	1
	With Brake	1.2	1.3	1.4	1.5

Electric Actuator Rod Type

GSSD2-32

□42 Stepping Motor

For compatible detailed model Nos., please see our website.

Model No. Notation Method

GSSD2 - 32 G E - 06 025 B B N - R01 - ○ - ○ - ○

❶Size

32	32

❷Connected Controller *1

G	ECMG/ECG-A

❸Motor Mounting Direction

E	Inline Mount

❹Screw Lead

06	6 mm
12	12 mm

❺Stroke

025	25 mm
050	50 mm
075	75 mm
100	100 mm

❻Brake *2

N	None
B	Yes

❼Encoder

B	Absolute Encoder
C	Incremental Encoder

❽Relay Cable*3

N00	None
R01	Flexible 1 m
R03	Flexible 3 m
R05	Flexible 5 m
R10	Flexible 10 m
S01	Fixed 1 m
S03	Fixed 3 m
S05	Fixed 5 m
S10	Fixed 10 m

❾Option

Blank	Rod end female thread
N	Rod end male thread

❿Mounting bracket

Blank	Without mounting bracket
FA	Rod Side Flange

⓫Accessories *4 (When rod end male thread N is selected)

Blank	No accessories
I	Single Knuckle
Y	Double-knuckle

*1 For controllers, please refer to P. 529.
*2 Select "Yes" for vertical use.
*3 For the external dimension drawing of the relay cable, please refer to P. 576.
*4 Single-knuckle: SSD2-I-32, Double-knuckle: SSD2-Y-32. For the external dimension drawing, please refer to "Pneumatic Cylinder ② (RJ-003AA)".

Specifications

Connected Controller		ECMG, ECG-A	
Motor		□42 Stepping Motor	
Encoder Type		Battery-less Absolute Encoder Incremental Encoder	
Drive Method		Sliding screw ø8	
Stroke	mm	25 to 100	
Screw lead	mm	6	12
Max. Payload kg *1 *2	Horizontal	9	4.8
	Vertical	11.6	4.8
Operating Speed Range *3	mm/s	10 to 250	15 to 500
Max. Acceleration/ Deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Max. Pushing Force	N	220	90
Pushing Operation Speed Range	mm/s	10 to 20	15 to 20
Repeatability	*4 mm	±0.01	
Lost Motion	mm	0.3 or less	
Brake	Type	Non-excitation operating type	
	Holding Force N	140	70
Insulation Resistance		10 MΩ, 500 VDC	
Withstanding 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	
Protection Structure		IP40	

*1 Payload varies depending on acceleration/deceleration and speed.
*2 When transporting, please use an external guide in combination.
*3 Maximum speed may decrease depending on conditions.
*4 Since there is backlash, if stopping accuracy is required, please use an external stopper, etc., and complete positioning with a pushing motion.

Speed and Payload

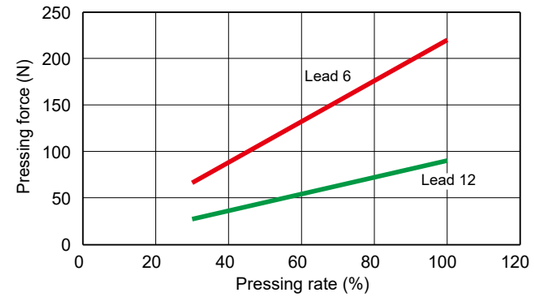
[Horizontal Installation] (kg)

Speed (mm/s)	Acceleration/deceleration 0.3G/0.7G			
	Screw Lead			
	6 mm		12 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
10	1.6	1.1		
15	1.6	1.1	1.2	0.7
50	6.8	6.3	4.8	4.3
70	6.8	6.3	4.8	4.3
100	9	8.7	4.8	4.3
150	6.8	6.3	3.6	3.1
200	2.8	2.3	3.6	3.1
250	0.8	0.3	3.6	3.1
300			3.6	3.1
350			1.6	1.1
400			1.6	1.1
500			0.8	0.3

[Vertical Installation] (kg)

Speed (mm/s)	Acceleration/deceleration 0.3G			
	Screw Lead			
	6 mm		12 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
10	8.8	8.3		
15	8.8	8.3	4.4	3.9
50	11.6	11.1	4.8	4.3
70	5.2	4.7	4.8	4.3
100	5.2	4.7	4.8	4.3
150	2	1.5	4.8	4.3
200	0.8	0.3	4.5	4.3
250			1.2	0.7
300			1.2	0.7
350				
400				
500				

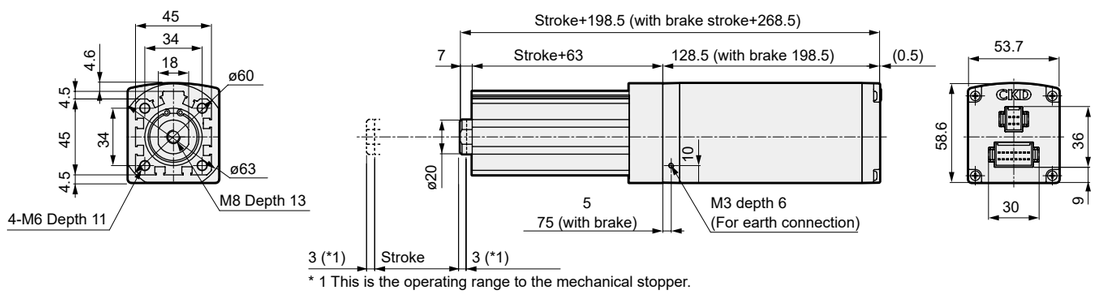
Pushing Force



*The upper pushing force is a reference value. It may vary depending on conditions such as pushing speed.

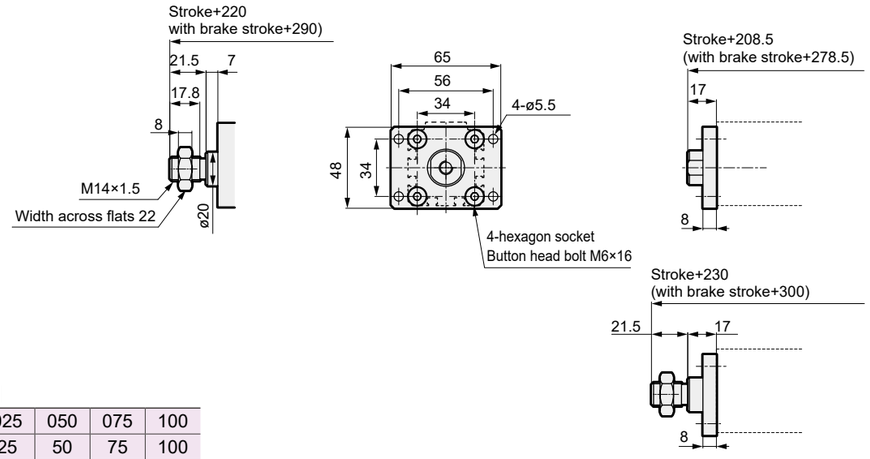
External Dimension Drawing

● GSSD2-32



* 1 This is the operating range to the mechanical stopper.

● Rod end male thread part ● Rod Side Flange (FA)



[Dimension Table by Stroke]

Stroke Code		025	050	075	100
Stroke (mm)		25	50	75	100
Weight (kg)	Without Brake	1.3	1.5	1.6	1.7
	With Brake	1.9	2.1	2.2	2.3

Electric Actuator Rod Type

GSSD2-50

□56 Stepping Motor

For compatible detailed model Nos., please see our website.

Model No. Notation Method

GSSD2 - 50 ❶ G ❷ E ❸ - 06 ❹ 025 ❺ B ❻ B ❼ N ❽ - R01 ❽ - ❾ - ❿ - ⓫

❶Size

50	50

❷Connected Controller *1

G	ECMG/ECG-A

❸Motor Mounting Direction

E	Inline Mount

❹Screw Lead

06	6 mm
12	12 mm

❺Stroke

025	25 mm
050	50 mm
075	75 mm
100	100 mm

❻Brake *2

N	None
B	Yes

❼Encoder

B	Absolute Encoder
C	Incremental Encoder

❽Relay Cable*3

N00	None
R01	Flexible 1 m
R03	Flexible 3 m
R05	Flexible 5 m
R10	Flexible 10 m
S01	Fixed 1 m
S03	Fixed 3 m
S05	Fixed 5 m
S10	Fixed 10 m

❾Option

Blank	Rod end female thread
N	Rod end male thread

❿Mounting bracket

Blank	Without mounting bracket
FA	Rod Side Flange

⓫Accessories *4
(When rod end male thread N is selected)

Blank	No accessories
I	Single Knuckle
Y	Double-knuckle

*1 For controllers, please refer to P. 529.
*2 Select "Yes" for vertical use.
*3 For the external dimension drawing of the relay cable, please refer to P. 576.
*4 Single-knuckle: SSD2-I-50, Double-knuckle: SSD2-Y-50. For the external dimension drawing, please refer to "Pneumatic Cylinder ② (RJ-003AA)".

Specifications

Connected Controller		ECMG, ECG-A	
Motor		□56 Stepping Motor	
Encoder Type		Battery-less Absolute Encoder Incremental Encoder	
Drive Method		Sliding screw ø12	
Stroke mm		25 to 100	
Screw lead mm		6	12
Max. Payload kg *1	Horizontal	14.8	14.8
	Vertical	19.6	13.2
Operating Speed Range *2 mm/s		20 to 250	20 to 400
Max. Acceleration/ Deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Max. Pushing Force N		590	425
Pushing Operation Speed Range mm/s		20	20
Repeatability *4 mm		±0.01	
Lost Motion mm		0.3 or less	
Brake	Type	Non-excitation operating type	
	Holding Force N	640	320
Insulation Resistance		10 MΩ, 500 VDC	
Withstanding 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	
Protection Structure		IP40	

*1 Payload varies depending on acceleration/deceleration and speed.
*2 When transporting, please use an external guide in combination.
*3 Maximum speed may decrease depending on conditions.
*4 Since there is backlash, if stopping accuracy is required, please use an external stopper, etc., and complete positioning with a pushing motion.

Speed and Payload

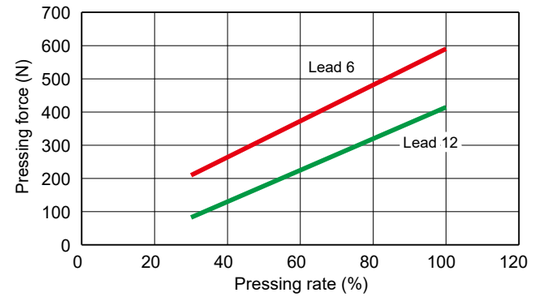
[Horizontal Installation] (kg)

Speed (mm/s)	Acceleration/deceleration 0.3G/0.7G			
	Screw Lead			
	6 mm		12 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
20	14.8	12.8	4.4	2.4
50	9.6	7.6	9.6	7.6
70	9.6	7.6	9.6	7.6
100	9.6	7.6	14.8	12.8
150	6	4	10.8	8.8
200	4	2	10.8	8.8
250	0.4		6	4
300			6	4
350			2.8	0.8
400			0.7	

[Vertical Installation] (kg)

Speed (mm/s)	Acceleration/deceleration 0.3G			
	Screw Lead			
	6 mm		12 mm	
	Stroke (mm)			
	50 or less	100 or less	50 or less	100 or less
20	19.6	18.6	3.6	2.6
50	14	13	13.2	12.2
70	4.8	3.8	12	11
100	4.8	3.8	10.5	11
150	0.8		4	3
200			4	3
250			2	1.5
300			0.7	
400				

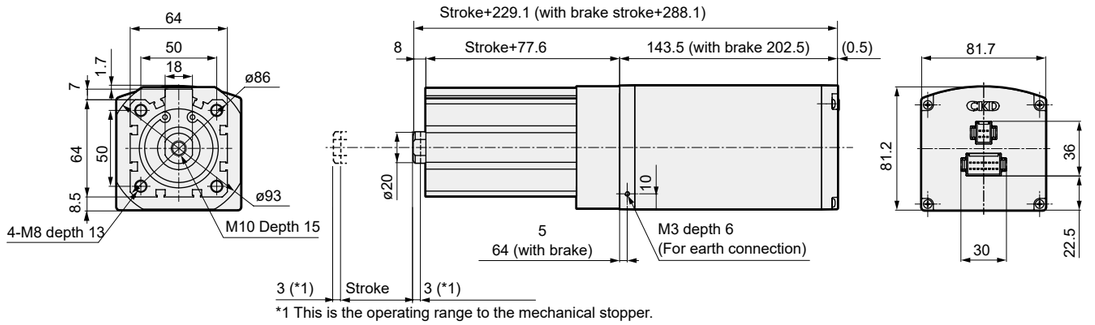
Pushing Force



*The upper pushing force is a reference value. It may vary depending on conditions such as pushing speed.

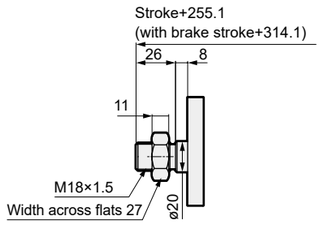
External Dimension Drawing

● GSSD2-50

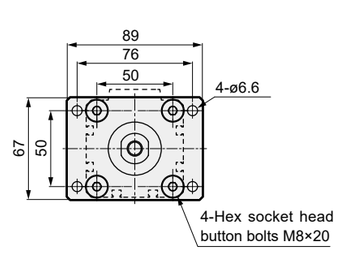


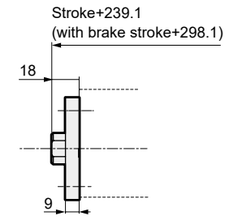
*1 This is the operating range to the mechanical stopper.

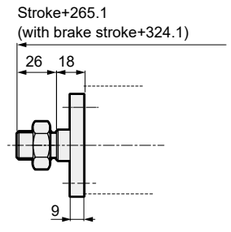
● Rod end male thread part



● Rod Side Flange (FA)







[Dimension Table by Stroke]

Stroke Code		025	050	075	100
Stroke (mm)		25	50	75	100
Weight (kg)	Without Brake	2.6	2.7	2.9	3.1
	With Brake	3.9	4	4.2	4.4

Model Selection

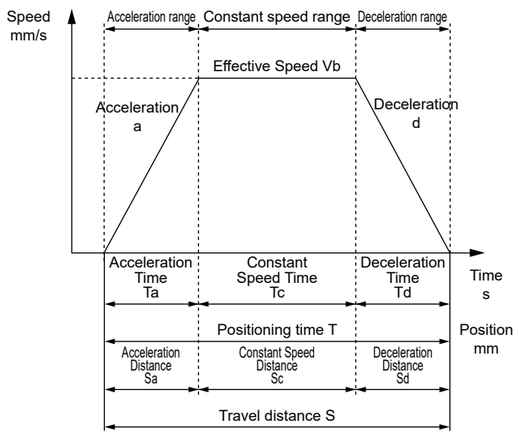
STEP1 Confirmation of Payload

The payload varies depending on the mounting orientation, screw lead, transport speed, and acceleration/deceleration. Select the size and screw lead by referring to the system table (P. 331), the specification table for each model, and the payload table by speed and acceleration/deceleration.

STEP2 Confirmation of Positioning Time

Calculate the positioning time for the selected product according to the example below and check if it meets the required tact time.

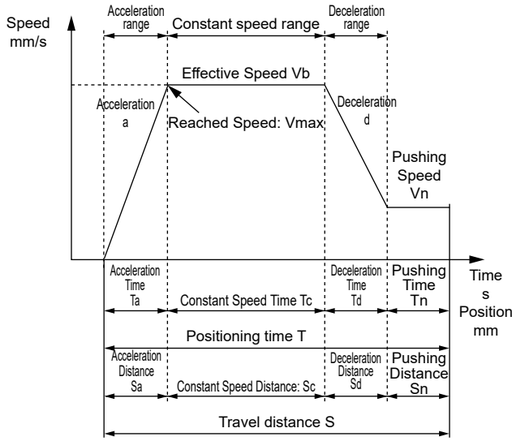
Positioning time for general transfer operations



	Content	Code	Unit	Remarks
Setting Value	Set Speed	V	mm/s	
	Set Acceleration	a	mm/s²	
	Set Deceleration	d	mm/s²	
	Travel Distance	S	mm	
Calculated Value	Reached Speed	Vmax	mm/s	$= [2\times a\times d\times S / (a+d)]^{1/2}$
	Effective Speed	Vb	mm/s	The smaller of V and Vmax
	Acceleration Time	Ta	s	= Vb / a
	Deceleration Time	Td	s	= Vb / d
	Constant Speed Time	Tc	s	= Sc / Vb
	Acceleration Distance	Sa	mm	$= (a\times Ta^2) / 2$
	Deceleration Distance	Sd	mm	$= (d\times Td^2) / 2$
	Constant Speed Distance	Sc	mm	= S - (Sa+Sd)
	Positioning Time	T	s	= Ta+Tc+Td

* Do not use at speeds exceeding the specifications.
* Depending on the acceleration/deceleration and stroke, a trapezoidal velocity waveform may not be formed (the set speed may not be reached). In that case, select the smaller of the set speed (V) and the reached speed (Vmax) as the effective speed (Vb).
* Acceleration and deceleration vary depending on the product and usage conditions. Refer to P. 332, 334 and 336 for details.
* Settling time varies depending on the usage conditions, but it may take about 0.2 s.
* 1G ≈ 9.8 m/s².

Positioning time for pushing operations



	Content	Code	Unit	Remarks
Setting Value	Set Speed	V	mm/s	
	Set Acceleration	a	mm/s²	
	Set Deceleration	d	mm/s²	
	Travel Distance	S	mm	
	Pushing Speed	Vn	mm/s	
	Pushing Distance	Sn	mm	
Calculated Value	Reached Speed	Vmax	mm/s	$= [2\times a\times d\times (S - Sn+Vn^2 / 2 / d) / (a+d)]^{1/2}$
	Effective Speed	Vb	mm/s	The smaller of V and Vmax
	Acceleration Time	Ta	s	= Vb / a
	Deceleration Time	Td	s	= (Vb - Vn) / d
	Constant Speed Time	Tc	s	= Sc / Vb
	Pushing Time	Tn	s	= Sn / Vn
	Acceleration Distance	Sa	mm	$= (a\times Ta^2) / 2$
	Deceleration Distance	Sd	mm	= ((Vb+Vn)×Td) / 2
	Constant Speed Distance	Sc	mm	= S - (Sa+Sd+Sn)
	Positioning Time	T	s	= Ta+Tc+Td+Tn

* Do not use at speeds exceeding the specifications.
* Pushing speed varies depending on the product.
* Depending on the acceleration/deceleration and stroke, a trapezoidal velocity waveform may not be formed (the set speed may not be reached). In that case, select the smaller of the set speed (V) and the reached speed (Vmax) as the effective speed (Vb).
* Acceleration and deceleration vary depending on the product and usage conditions. Refer to P. 332, 334 and 336 for details.
* Settling time varies depending on the usage conditions, but it may take about 0.2 s.
* 1G ≈ 9.8 m/s².

MEMO