GSSD2

Rod type

Electric actuator
Motor specifications

CONTENTS

GSSD2 Series variation

Actuator model No.	Motor Size	Screw lead (mm)	Max. payload (kg)		Stroke (mm) and Maximum speed (mm/s)					Max. Pressing 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

How to order

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

❶Size

20	20

❷Applicable controller * 1

G	ECG-A, ECMG

❸Motor mounting direction

E	Straight mounting

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	Available

❼Encoder

B	Absolute encoder
C	Incremental encoder

❽Relay cable * 3

N00	None
R01	Movable 1 m
R03	Movable 3 m
R05	Movable 5 m
R10	Movable 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

⓫Accessory *4 (when rod end male thread N is selected)

Blank	Without accessory
I	Rod eye
Y	Rod clevis

*1 Refer to page 189 for controller.
*2 Select "Yes" for vertical use.
*3 Refer to page 200 for relay cable dimensions.
*4 rod eye: SSD2-I-20, rod clevis: SSD2-Y-20. For dimensional diagrams, refer to Pneumatic Cylinders General Catalog (CB-029SA).

Specifications

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
Operation speed range * 3	mm/s	10 to 250	12 to 400
Max. acceleration/ deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Maximum pressing force	N	100	70
Pressing operation speed range	mm/s	10 to 20	12 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.3 or less	
Brake	Models	Non-excitation operation type	
	Holding force N	140	93
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 Payload varies according to acceleration/deceleration and speed.
*2 Use an external guide when transporting.
*3 The maximum speed may decrease depending on the conditions.

Speed and payload

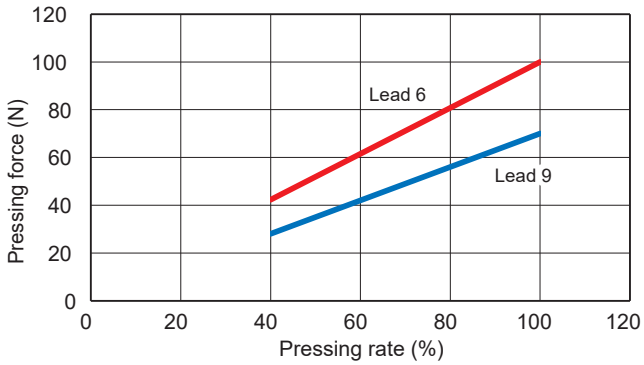
[When installed horizontally] (kg)

Speed (mm/s)	Acceleration / Deceleration 0.3G / 0.7G			
	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	-

[When installed vertically] (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	-	-	-	-

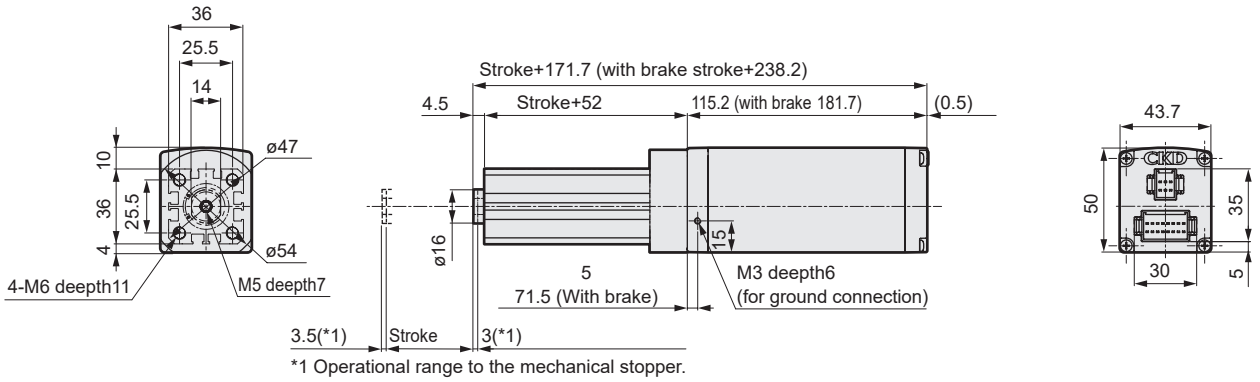
Pressing force



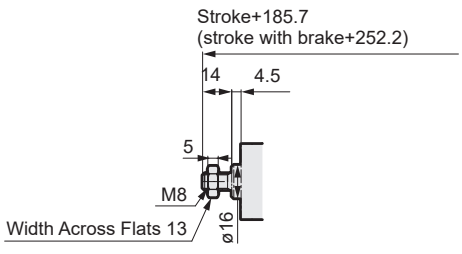
* The pressing force at the top is a reference value. Variations may occur according to conditions such as pressing speed.

Dimensions

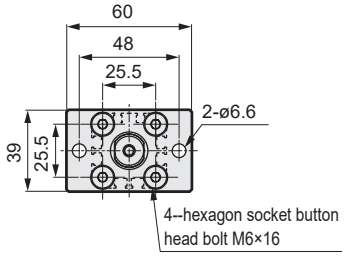
● GSSD2-20

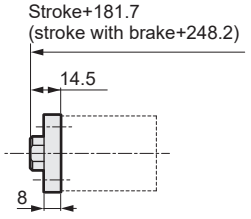


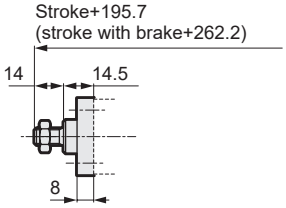
●Rod end male thread



●Rod side flange (FA)







[Dimensions 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

How to order

GSSD2 - 32 ❶ G ❷ E ❸ - 06 ❹ 025 ❺ B ❻ B ❼ N - R01 ❽ - ❾ - ❿ - ⓫

❶Size

32	32

❷Applicable controller * 1

G	ECG-A, ECMG

❸Motor mounting direction

E	Straight mounting

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	Available

❼Encoder

B	Absolute encoder
C	Incremental encoder

❽Relay cable * 3

N00	None
R01	Movable 1 m
R03	Movable 3 m
R05	Movable 5 m
R10	Movable 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

⓫Accessory *4 (when rod end male thread N is selected)

Blank	Without accessory
I	Rod eye
Y	Rod clevis

*1 Refer to page 189 for controller.
*2 Select "Yes" for vertical use.
*3 Refer to page 200 for relay cable dimensions.
*4 Rod eye: SSD2-I-32, rod clevis: SSD2-Y-32. For dimensional diagrams, refer to Pneumatic Cylinders General Catalog (CB-029SA).

Specifications

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
Operation speed range * 3	mm/s	10 to 250	15 to 500
Max. acceleration/ deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Maximum pressing force	N	220	90
Pressing operation speed range	mm/s	10 to 20	15 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.3 or less	
Brake	Models	Non-excitation operation type	
	Holding force N	140	70
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 Payload varies according to acceleration/deceleration and speed.
*2 Use an external guide when transporting.
*3 The maximum speed may decrease depending on the conditions.

Speed and payload

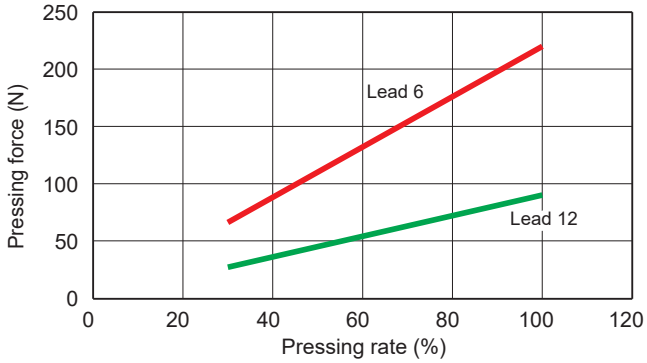
[When installed horizontally] (kg)

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

[When installed vertically] (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	-	-	-	-

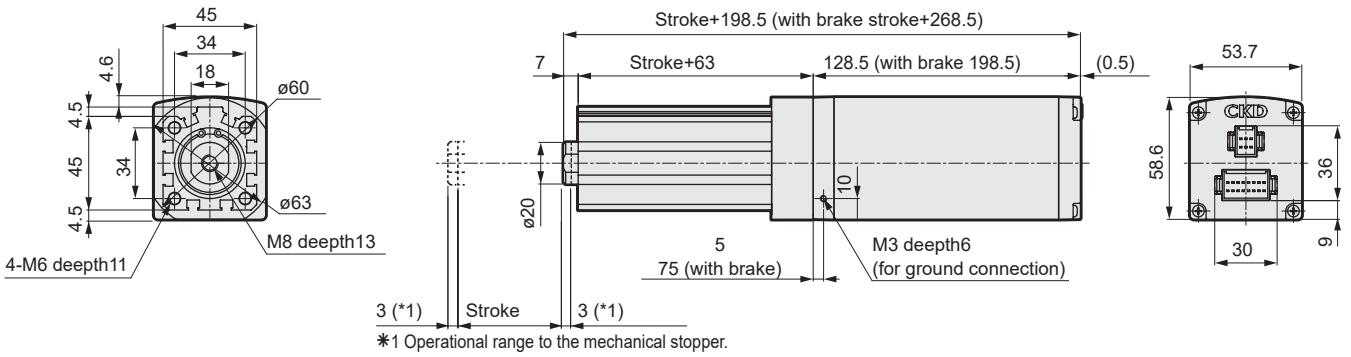
Pressing force



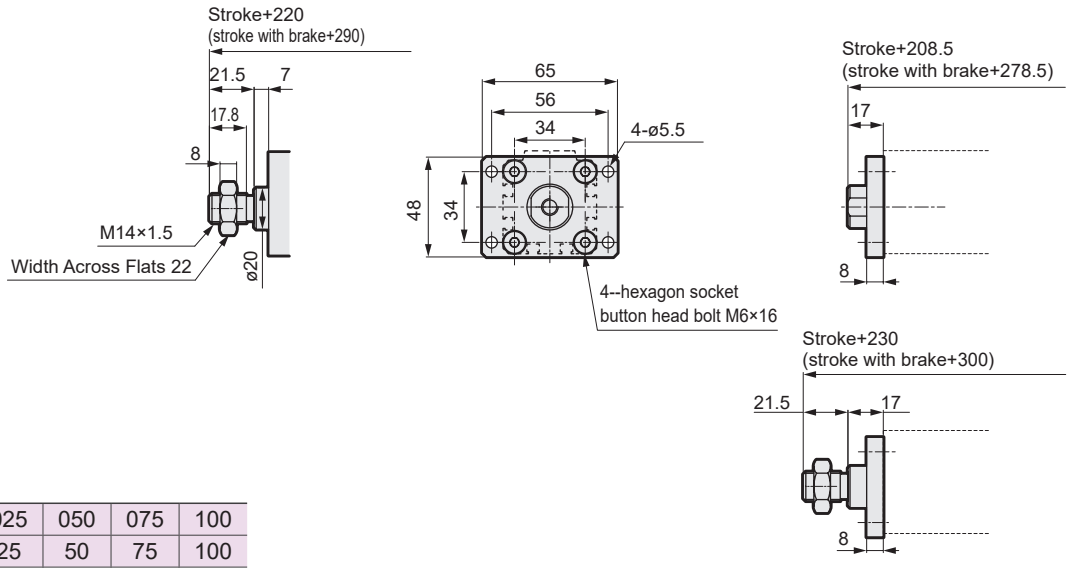
* The pressing force at the top is a reference value. Variations may occur according to conditions such as pressing speed.

Dimensions

● GSSD2-32



● Rod end male thread ● Rod side flange (FA)



[Dimensions 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

How to order

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

❶Size

50	50

❷Applicable controller * 1

G	ECG-A, ECMG

❸Motor mounting direction

E	Straight mounting

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	Available

❼Encode

B	Absolute encoder
C	Incremental encoder

❽Relay cable * 3

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

❾Options

Blank	Rod end female thread
N	Rod end male thread

❿Mounting bracket

Blank	Without mounting bracket
FA	Rod side flange

⓫Accessory *4 (when rod end male thread N is selected)

Blank	Without accessory
I	Rod eye
Y	Rod clevis

*1 Refer to page 189 for controller.
*2 Select "Yes" for vertical use.
*3 Refer to page 200 for relay cable dimensions.
*4 Rod eye: SSD2-I-50, rod clevis: SSD2-Y-50. For dimensional diagrams, refer to Pneumatic Cylinders General Catalog (CB-029SA).

Specifications

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
Operation speed range *2	mm/s	20 to 250	20 to 400
Max. acceleration/deceleration	Horizontal	0.7	0.7
	Vertical	0.3	0.3
Maximum pressing force	N	590	425
Pressing operation speed range	mm/s	20	20
Repeatability	mm	±0.01	
Lost motion	mm	0.3 or less	
Brake	Models	Non-excitation operation type	
	Holding force N	640	320
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 Payload varies according to acceleration/deceleration and speed.
*2 Use an external guide when transporting.
*3 The maximum speed may decrease depending on the conditions.

Speed and payload

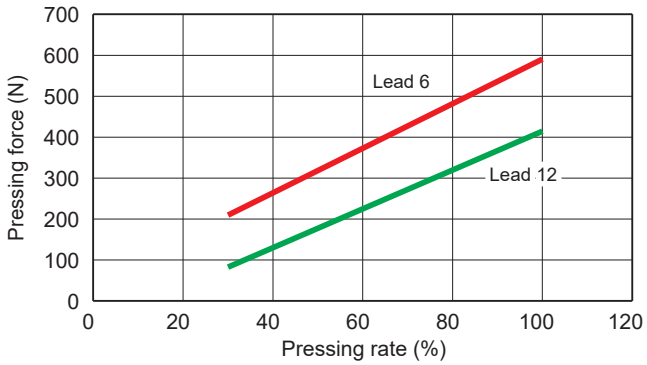
[When installed horizontally] (kg)

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	-

[When installed vertically] (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	-	-	-	-

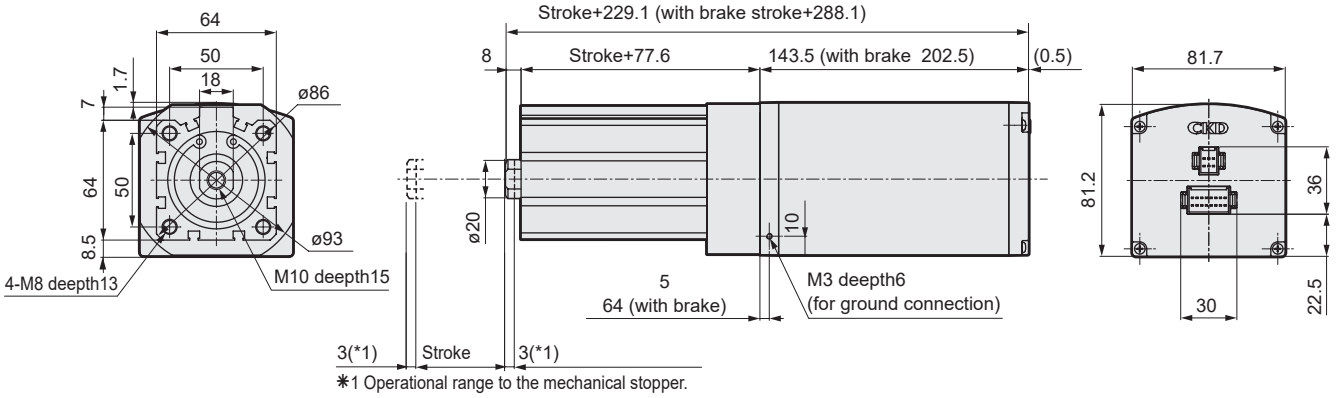
Pressing force



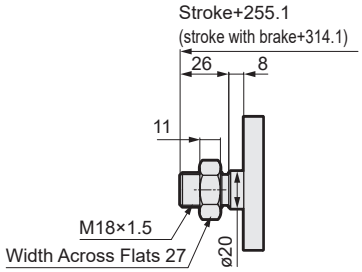
* The pressing force at the top is a reference value. Variations may occur according to conditions such as pressing speed.

Dimensions

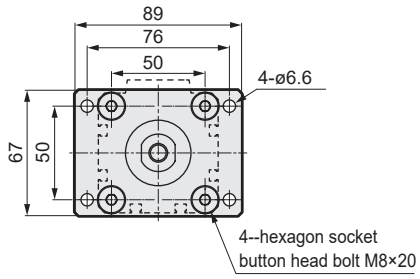
● GSSD2-50

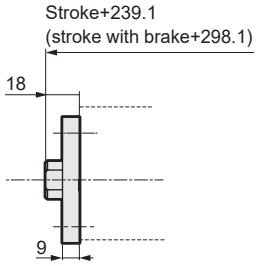


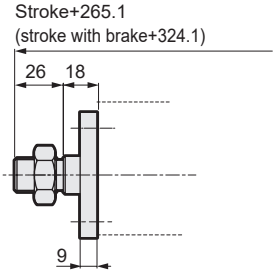
●Rod end male thread



●Rod side flange (FA)







[Dimensions 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

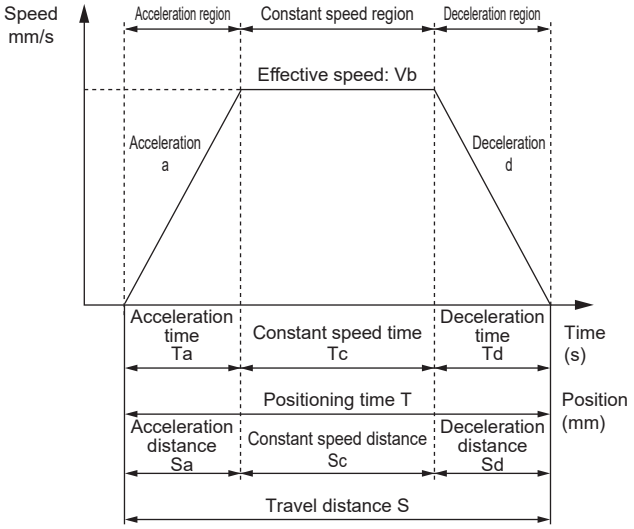
STEP 1 Confirming payload

Load capacity varies with mounting orientation, screw lead, transport speed, acceleration/deceleration and power supply voltage. Refer to the Series Variation (page 115), the specification table for each model and the Table of Load Capacity by Speed and Acceleration/Deceleration to select the size and screw lead.

STEP 2 Confirming positioning time

Calculate the positioning time with the selected product according to the following example and confirm that the required tact is achievable.

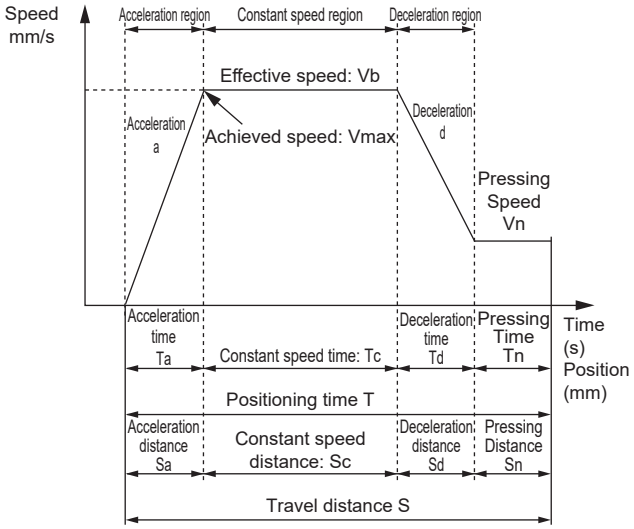
Positioning time for general transport operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
Calculated value	Achieved speed	Vmax	mm/s	$=[2\times a\times d\times S / (a+d)]^{1/2}$
	Effective speed	Vb	mm/s	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 that exceed the specifications.
* Depending on acceleration/deceleration and stroke, the trapezoid speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* acceleration and deceleration differ depending on the product and working conditions. Refer to pages 116, 118 and 120 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ $9.8m/s^2$.

Positioning time for pressing operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
	Pressing speed	Vn	mm/s	
	Pressing distance	Sn	mm	
Calculated value	Achieved 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 lesser value of V and Vmax
	Acceleration time	Ta	s	=Vb / a
	Deceleration time	Td	s	=(Vb-Vn) / d
	Constant speed time	Tc	s	=Sc / Vb
	Pressing 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 that exceed the specifications.
* Pressing speed differs depending on the product.
* Depending on acceleration/deceleration and stroke, the trapezoid speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* acceleration and deceleration differ depending on the product and working conditions. Refer to pages 116, 118 and 120 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ $9.8m/s^2$.