

DSTK

Stopper Type

Electric Actuator with
Motor Specification



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DSTK System Table

Actuator Model No.	Motor Size	Screw Lead (mm)	Max. Thrust (N)	Stroke (mm) and Max. Speed (mm/s)		
			Horizontal/ Vertical	10	20	30
DSTK-20	□35	6	62	90		
		9	47	135		
DSTK-32	□42	6	137	90		
		12	47	180		
DSTK-50	□56	6	129	72		
		12	70	144		



Electric Actuator Stopper Type

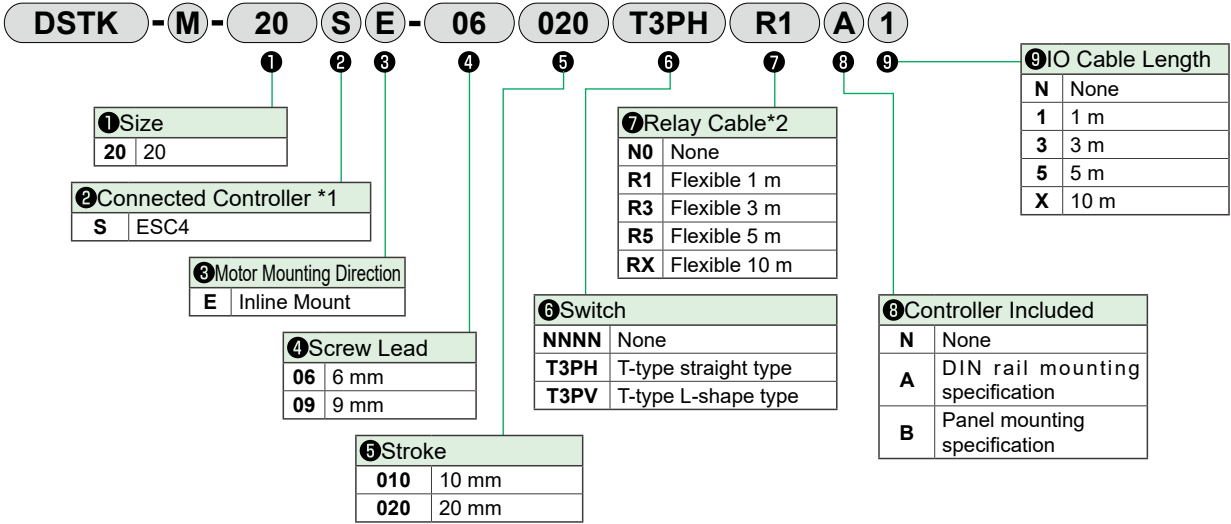
DSTK-20

□35 Stepping Motor



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

Model No. Notation Method



*1 For controllers, please refer to P. 611.
*2 For the external dimension drawing of the relay cable, please refer to P. 618.

Specifications		
Connected Controller	ESC4	
Motor	□35 Stepping Motor	
Drive Method	Sliding screw ø6	
Stroke	10, 20	
Screw lead	6	9
Max. Thrust *1	62	47
Operating Speed Range *2	15 to 90	22 to 135
Max. Acceleration/Deceleration *3	1312 (Setting: 9)	2938 (Setting: 9)
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	

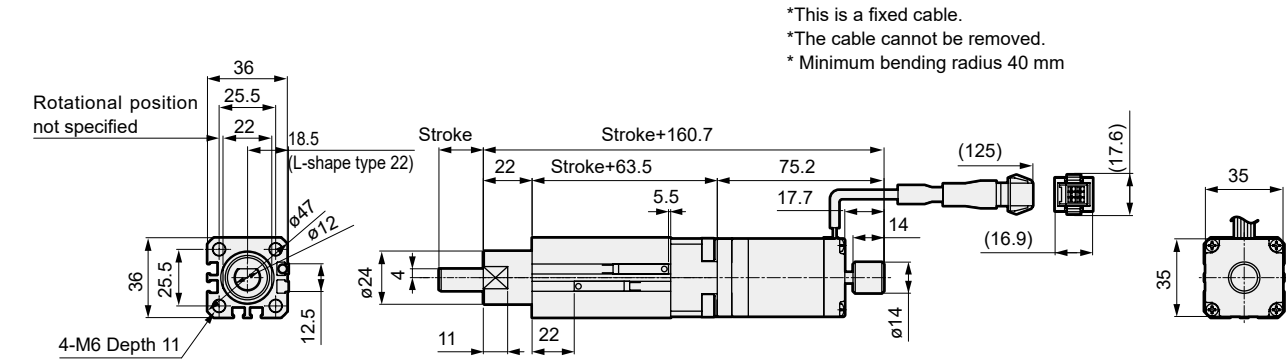
*1 Thrust varies depending on speed. For details, please refer to the speed and thrust table.
*2 Maximum speed may decrease depending on conditions.
*3 For acceleration/deceleration at other settings, please refer to the speed and thrust table.
*4 Pushing operation is not supported.

DSTK-20 Series

External Dimension Drawing

External Dimension Drawing

● DSTK-20



[Dimension Table by Stroke]

Stroke Code	010	020
Stroke (mm)	10	20
Weight (kg)	0.6	0.6

Speed and Thrust						
[Horizontal/Vertical Installation]						
Switch Setting	Screw Lead					
	6 mm			9 mm		
	Speed (mm/s)	Acceleration/Deceleration (mm/s²)	Thrust (N)	Speed (mm/s)	Acceleration/Deceleration (mm/s²)	Thrust (N)
0	15	0	62	22	0	47
1	23	53	62	35	119	47
2	31	129	62	47	290	47
3	40	229	62	60	513	47
4	48	351	62	72	787	43
5	56	497	62	85	1114	43
6	65	666	62	97	1492	39
7	73	858	47	110	1922	35
8	81	1074	47	122	2404	35
9	90	1312	47	135	2938	35

*The speed and acceleration/deceleration settings are for reference only. A discrepancy from the actual values may occur due to switch adjustment, power supply voltage, individual differences among motors, variations in mechanical efficiency, and temperature.



Electric Actuator Stopper Type

DSTK-50

□56 Stepping Motor



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

Model No. Notation Method

DSTK - M - 50 S E - 06 020 T3PH R1 A 1

①Size

50	50
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②Connected Controller *1

S	ESC4
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③Motor Mounting Direction

E	Inline Mount
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④Screw Lead

06	6 mm
12	12 mm

⑤Stroke

020	20 mm
030	30 mm

⑦Relay Cable*2

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

⑧Controller Attached

N	None
A	DIN rail mounting specification
B	Panel mounting specification

⑨IO Cable Length

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

*1 For controllers, please refer to P. 611.
*2 For the external dimension drawing of the relay cable, please refer to P. 618.

Specifications

Connected Controller	ESC4	
Motor	□56 Stepping Motor	
Drive Method	Sliding screw ø12	
Stroke	mm	20, 30
Screw lead	mm	6 12
Max. Thrust	*1 N	129 70
Operating Speed Range *2	mm/s	15 to 72 30 to 144
Max. Acceleration/Deceleration	*3 mm/s ²	826 (Setting: 9) 3306 (Setting: 9)
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 Thrust varies depending on speed. For details, please refer to the speed and thrust table.
*2 Maximum speed may decrease depending on conditions.
*3 For acceleration/deceleration at other settings, please refer to the speed and thrust table.
*4 Pushing operation is not supported.

Speed and Thrust

[Horizontal/Vertical Installation]

Switch Setting	Screw Lead					
	6 mm			12 mm		
	Speed (mm/s)	Acceleration/Deceleration (mm/s ²)	Thrust (N)	Speed (mm/s)	Acceleration/Deceleration (mm/s ²)	Thrust (N)
0	15	0	129	30	0	62
1	21	38	129	42	153	62
2	27	90	129	55	360	66
3	34	155	129	68	620	66
4	40	233	125	80	934	70
5	46	325	121	93	1301	66
6	53	430	117	106	1722	62
7	59	549	94	118	2196	58
8	65	681	74	131	2724	43
9	72	826	0	144	3306	23

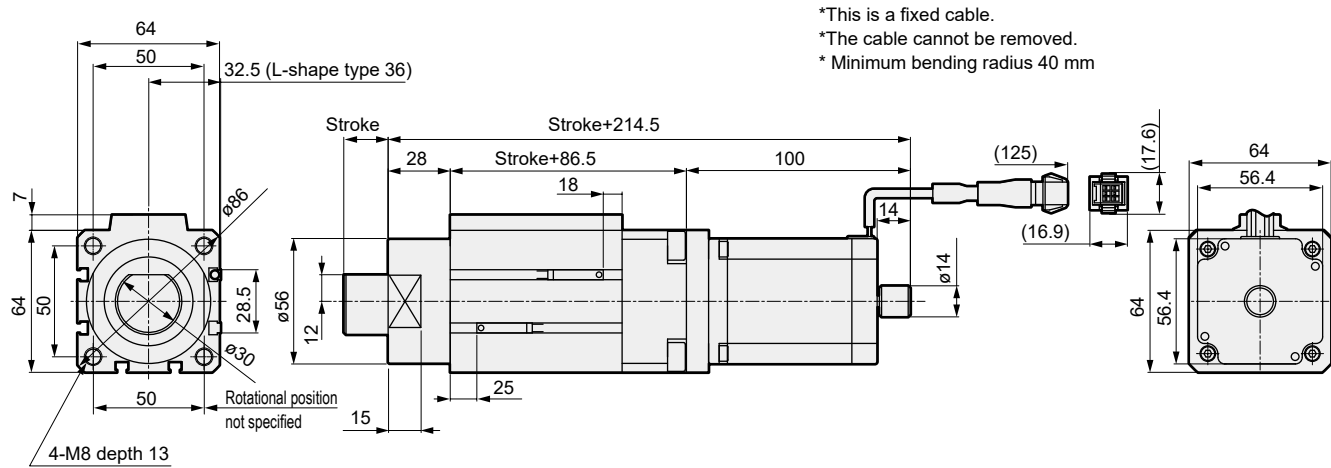
*The speed and acceleration/deceleration settings are for reference only. A discrepancy from the actual values may occur due to switch adjustment, power supply voltage, individual differences among motors, variations in mechanical efficiency, and temperature.

DSTK-50 Series

External Dimension Drawing

External Dimension Drawing

● DSTK-50



[Dimension Table by Stroke]

Stroke Code	020	030
Stroke (mm)	20	30
Weight (kg)	2.8	2.9

Model Selection

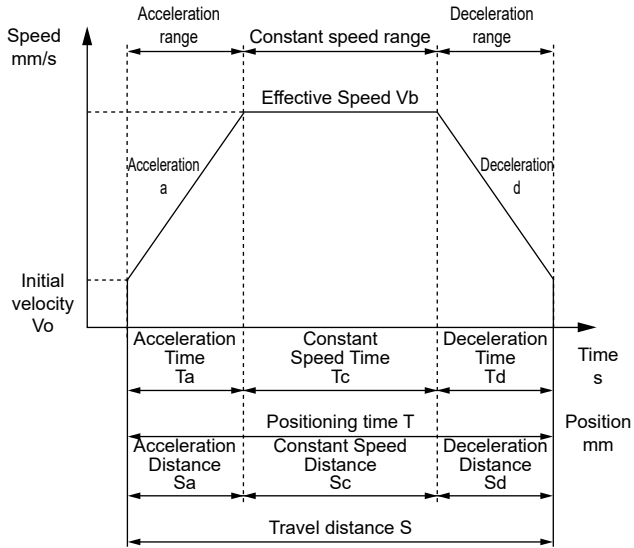
STEP1 Confirmation of thrust

Thrust varies with size, screw lead and operation speed. Refer to System Table (page 427), the specification table for each model and the thrust table by speed setting to select the size and screw lead.

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	Formula
Setting Value	Initial velocity	V0	mm/s	According to the table below (= value of switch setting 0)
	Speed Setting	V	mm/s	According to the table below
	Acceleration	a	mm/s ²	According to the table below (fixed value)
	Deceleration	d	mm/s ²	According to the table below (fixed value)
Calculated Value	Travel Distance	S	mm	<
	Reached Speed	Vmax	mm/s	$= (S \times a + V0^2)^{1/2}$
	Effective Speed	Vb	mm/s	The smaller of V and Vmax
	Acceleration Time	Ta	s	$= (Vb - V0) / a$
	Deceleration Time	Td	s	$= (Vb - 0) / d$
	Constant Speed Time	Tc	s	$= Sc / Vb$
	Acceleration Distance	Sa	mm	$= V0 \times Ta + (a \times Ta^2) / 2$
	Deceleration Distance	Sc	mm	$= S - 2 \times Sa$
	Constant Speed Distance	Sc	mm	$= S - 2 \times Sa$
	Positioning Time	T	s	$= 2 \times Ta + Tc$

* Depending on the speed setting 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/deceleration is determined by the speed setting.
* The speed is determined by the settings of rotary switches 1 and 2.
* Settling time varies depending on the usage conditions, but it may take about 0.2 s.

[Speed Setting]		(mm/s)					
Switch Setting	Size 20		Size 32		Size 50		
	L6	L9	L6	L12	L6	L12	
0	15	22	15	30	15	30	
1	23	35	23	46	21	42	
2	31	47	31	63	27	55	
3	40	60	40	80	34	68	
4	48	72	48	96	40	80	
5	56	85	56	113	46	93	
6	65	97	65	130	53	106	
7	73	110	73	146	59	118	
8	81	122	81	163	65	131	
9	90	135	90	180	72	144	

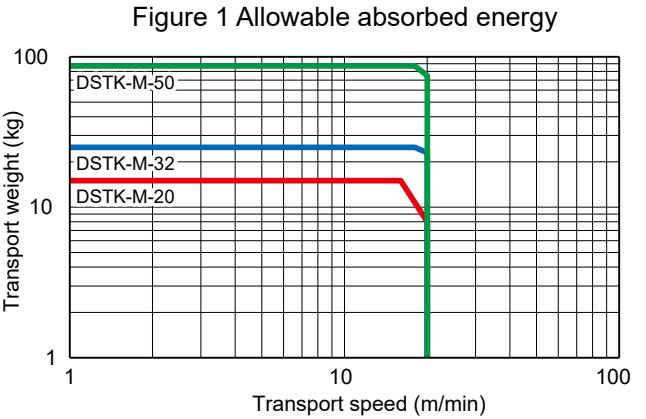
[Acceleration, Deceleration]		(mm/s ²)					
Switch Setting	Size 20		Size 32		Size 50		
	L6	L9	L6	L12	L6	L12	
0	0	0	0	0	0	0	
1	53	119	53	212	38	153	
2	129	290	129	518	90	360	
3	229	513	229	916	155	620	
4	351	787	351	1407	234	934	
5	497	1114	497	1990	325	1301	
6	666	1492	666	2666	431	1722	
7	858	1922	858	3435	549	2196	
8	1074	2404	1074	4296	681	2724	
9	1312	2938	1312	5250	827	3306	

STEP3 Operating range

Select a model from the conveying weight (m) and conveying speed (V) so that the allowable absorption energy in the graph on the right is not exceeded.

(Example) Transport speed 15 m/min, Transport weight 20 kg

[How to Read the Graph]
To select the above specifications, find the intersection of 15 m/min on the horizontal axis and 20 kg on the vertical axis from graph Figure 1 on the right, and select DSTK-32, which is within the allowable absorption energy range.



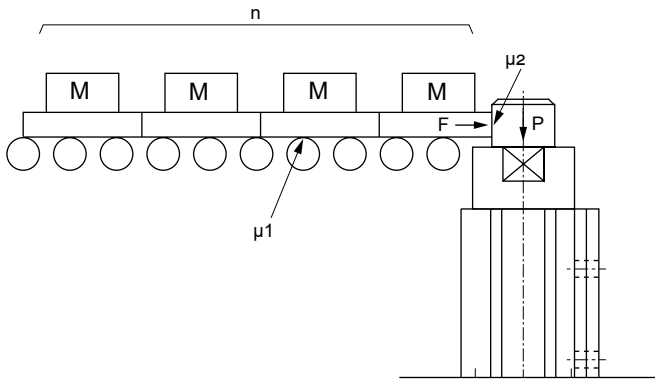
STEP4 Lateral Load and Thrust

The thrust during rod retraction varies depending on the magnitude of the lateral load applied to the rod tip, so check the required operating thrust.

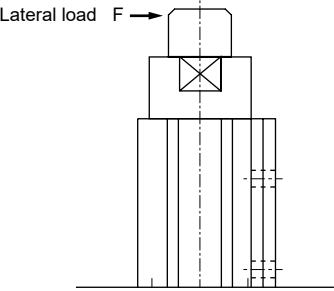
1. Determine the lateral load (F) applied to the rod tip.
 $F = 10 \cdot m \cdot n \cdot \mu_1$
F: Lateral load (N)
M: Transport weight: kg
n: Quantity of transported items
 μ_1 : Coefficient of friction between transport pallet and conveyor

2. Determine the required thrust (P) during rod retraction.
 $P = F \cdot \mu_2$
P: Required thrust (N)
 μ_2 : Coefficient of friction between transported item and rod
(Note) The coefficient of friction differs depending on the material of the transported item, so please refer to the coefficients in the table below.

Material of transported item	Steel	Aluminum	Urethane
μ_2	0.5	0.8	2.0



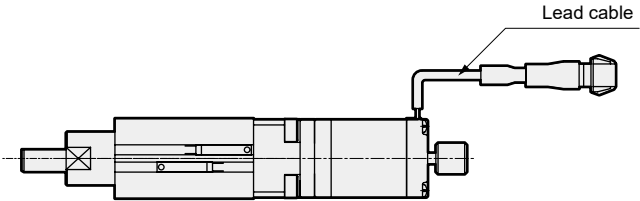
Size	Stroke (mm)		
	10	20	30
DSTK-20	106.5	93.2	-
DSTK-32	272.8	238.7	-
DSTK-50	-	582.8	525.8



Special Order Product*

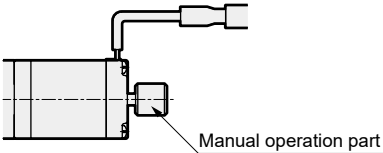
● Change of cable outlet direction

It is possible to change the outlet direction of the lead cable coming out of the motor.



● Add cover to manual operation part

A rubber cover can be included to the manual operation part at the rear of the motor.



MEMO

*For details on special order products, please contact our sales office.