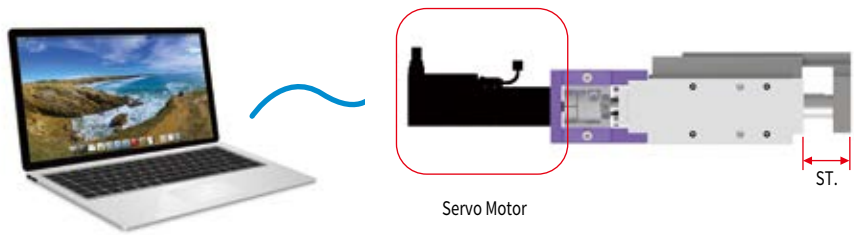
ELECTRIC PRECISION COMPACT CYLINDER

ETB Series

Electric Precision guided miniature cylinder

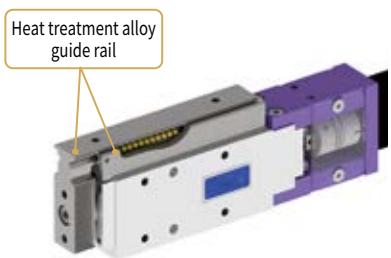
Stroke control available

- Servo motor-driven stroke control .
- Multi-position control available via program settings.



Precision Guide

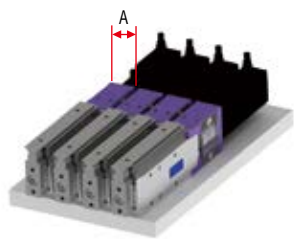
- Special features maintained with SC-A guide application.
- Lightweight design achieved with separated guide structure.



Compact

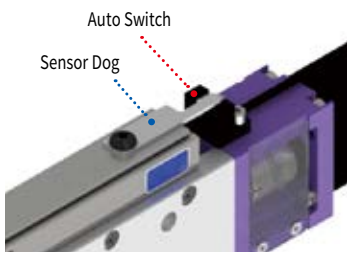
- Slim structure ideal for parallel arrangement.

Model	A (mm)
ETB10	17
ETB16	26



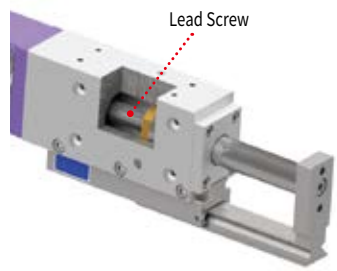
Auto Switch Option

- External auto switch with home sensor functionality.



Slide Screw

- Lightweight design achieved with precise lead screw operation.



ELECTRIC PRECISION COMPACT CYLINDER

ETB Series

Features

NEW

- A single unit can achieve various stroke length through position control programming.
- Suitable for environments without access to compressed air.
- High precision and rigidity achieved with the SC-A precision guide structure.
- Compact design ideal for use in narrow spaces.
- Slim structure ideal for parallel arrangement.
- Lightweight design achieved with precise lead screw operation.

Order Form

ETB 16 - 40 - D - CF 3

① ② ③ ④ ⑤ ⑥

① Series Name

② Table Specification / ③ Standard Strokes

Order	Guide Specification	Order (=Standard Strokes(mm))
10	SC10A Compatible guide	30
16	SC16A Compatible guide	40

④ Driver

Order	Driver
Blank	Without Driver
D	With Driver

* When selecting the 'D' option, a non-movable driver cable (1m) will be included.

⑤ Cable for Motor / ⑥ Cable Length

Order	Cable Type	Cable length
Blank	Without Cable	
CF	Non-movable	Unit : 1m
CM	movable	Max:10m

Specification

Item Name			ETB10-30	ETB16-40
Table Guide			SC10A-30 Compatible guide	SC16A-40 Compatible guide
Standard Stroke(mm)			30	40
Load Weight(kgf)	Note 1)	Hor	0.4	5
	Note 2)	Vert	0.9	6
Maximum Speed(mm/s)	Note 1)	Hor	250	300
	Note 2)	Vert	250	300
Lost motion(mm)	Note 3)		Less than ±0.1	
Repeatability(mm)			±0.01	
Body Weight(kgf)	Note 4)		0.34	0.85
Operating Temperature(°C)			5 ~ 50	
Driving Method			Lead Screw	
Lead of Screw (mm)			6	
Guide Method			Linear Guide	
Motor Input Voltage(V) / Power (W)			24VDC ±10%	
Motor Control Method			Serial encoder 17 bit (Absolute type)	

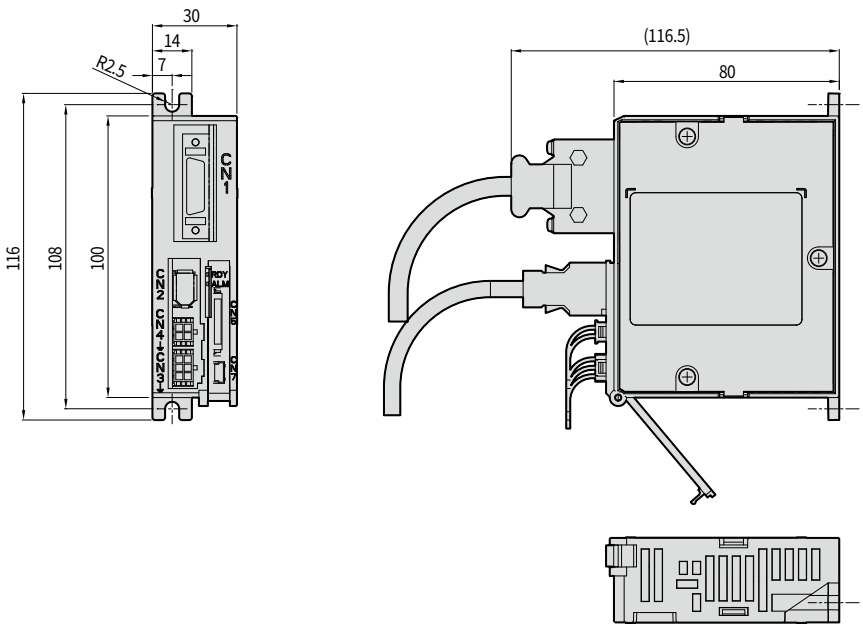
Note 1) Maximum load may differ according to the load conditions and speed. Please refer to the speed-load graph.
Note 2) It may be affected by the motor, cable length, and installation conditions, Longer cable length may reduce maximum load and speed.
Note 3) The lost motion refers to the maximum difference in the reciprocating motion at the standard position.
Note 4) Body weight, including the motor.

Specification of ETB-Driver

Connector Type		ETB10-30	ETB16-40
Control Type		PWM control sine wave current drive type	
Power Supply(VDC)		Control Circuit : 24 ±15% Main Circuit : 24, 48 ±15%	
Operating Current(A)	ETB10	Rated 1.7 (MAX 4.1)	
	ETB16	Rated 2.9 (MAX 8.6)	
Operating Environment		Temperature : 0 ~ 55 ℃ Humidity : Less than 90% (No condensation)	
Mounting Type		Base Mounting	
Protection		Overcurrent, overvoltage, undervoltage, overload	
Input Signals Note 1)		Servo ON, Stop operation, Alarm reset, setting change, etc...	
Output Signals Note 1)		Encoder pulse out, operation completed, limit detection, alarms, etc.	
Weight		300g	

Note 1) This specification is for a pulse input type driver. For products with other communication control methods, please contact our office.

Servo Driver

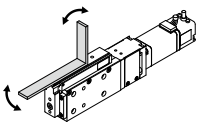
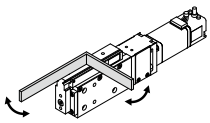
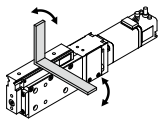
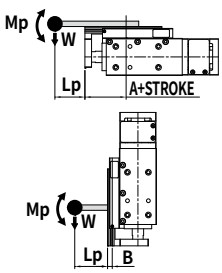
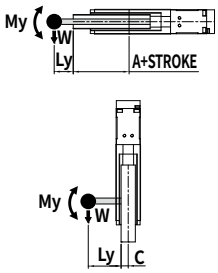
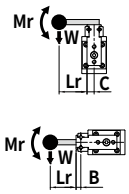
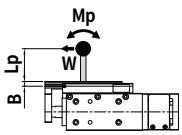
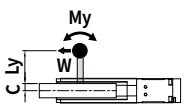


Model selection guide for ETB Series

Technical Data for Each Model

■ Formula of Moment for 3 Directions (Mp, My, Mr) Figure 1

※ W : work weight (Kgf), K_2 : speed factor, K_3 : shock factor

	Pitch Moment (Mp)	Yawing Moment (My)	Rolling Moment (Mr)
Direction of moment			
Static moment			
Formula of static moment	Mp = W × (A + STROKE + Lp) Mp = W × (B + Lp)	My = W × (A + STROKE + Ly) My = W × (C + Ly)	Mr = W × (C + Lr) Mr = W × (B + Lr)
Dynamic moment			
Formula of dynamic moment	Mp = K_2 × W × (A + STROKE + Lp) Mp = K_2 × W × (B + Lp)	My = K_2 × W × (A + STROKE + Ly) My = K_2 × W × (C + Ly)	Mr = K_2 × W × (C + Lr) Mr = K_2 × W × (B + Lr)

■ Correction Value for Moment Distance Table 1

Unit : mm

Model \ Value	A	B	C
ETB10-30	21	3.5	5
ETB16-40	24.5	5	7.5

■ Maximum Allowable Moment Table 2

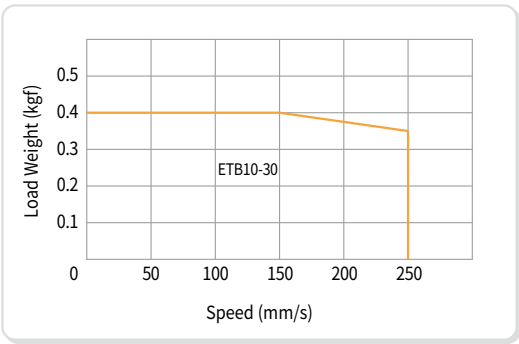
Unit : kgf·cm

Model \ Moment	Mp	My	Mr
ETB10-30	3.82	3.82	7.21
ETB16-40	12.3	12.3	15.8

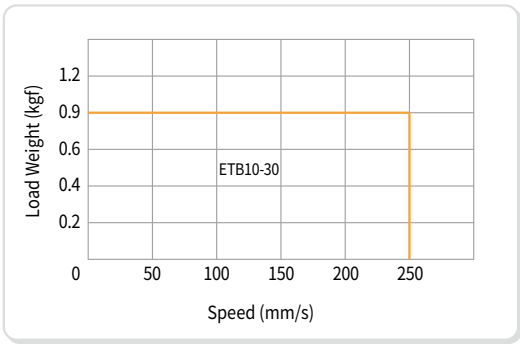
Model selection guide for ETB Series

Model selection guide : Speed - load weight graph

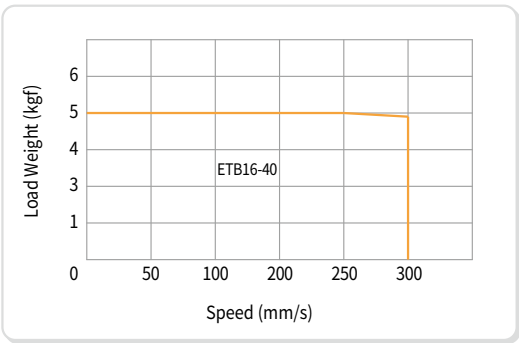
▶ ETB10 Vertical Load Weight



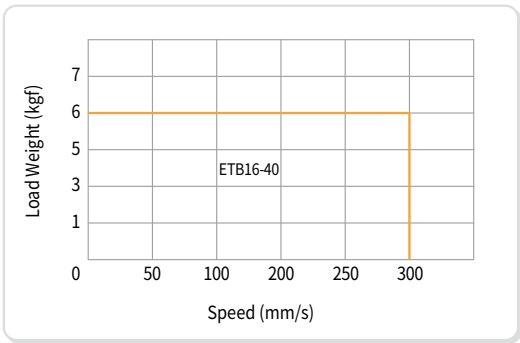
▶ ETB10 Horizontal Load Weight



▶ ETB16 Vertical Load Weight



▶ ETB16 Horizontal Load Weight



- The speed-load weight graph refers to the theoretical value with the motor selected by us and the center of gravity of the load aligned with the operation axis.
  This graph may vary according to the motor's operating conditions and the misalignment of the load weight.
- The load weight is affected by motor output. The above data is based on 100% motor output. For higher load weight requirement, please contact us.

How to Select a Model

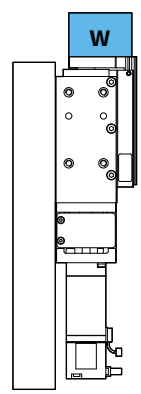
1. Check the weight of load
   - If there is any external force, such as cableveyor, it should be added to the total load.

   Example) 2 Kg load weight

2. Check the moving speed
   Moving speed is calculated by dividing the stroke(mm) by the moving time(s).
   - The above calculation is for the constant speed area ;acceleration and deceleration need to be considered when selecting target time and speed .

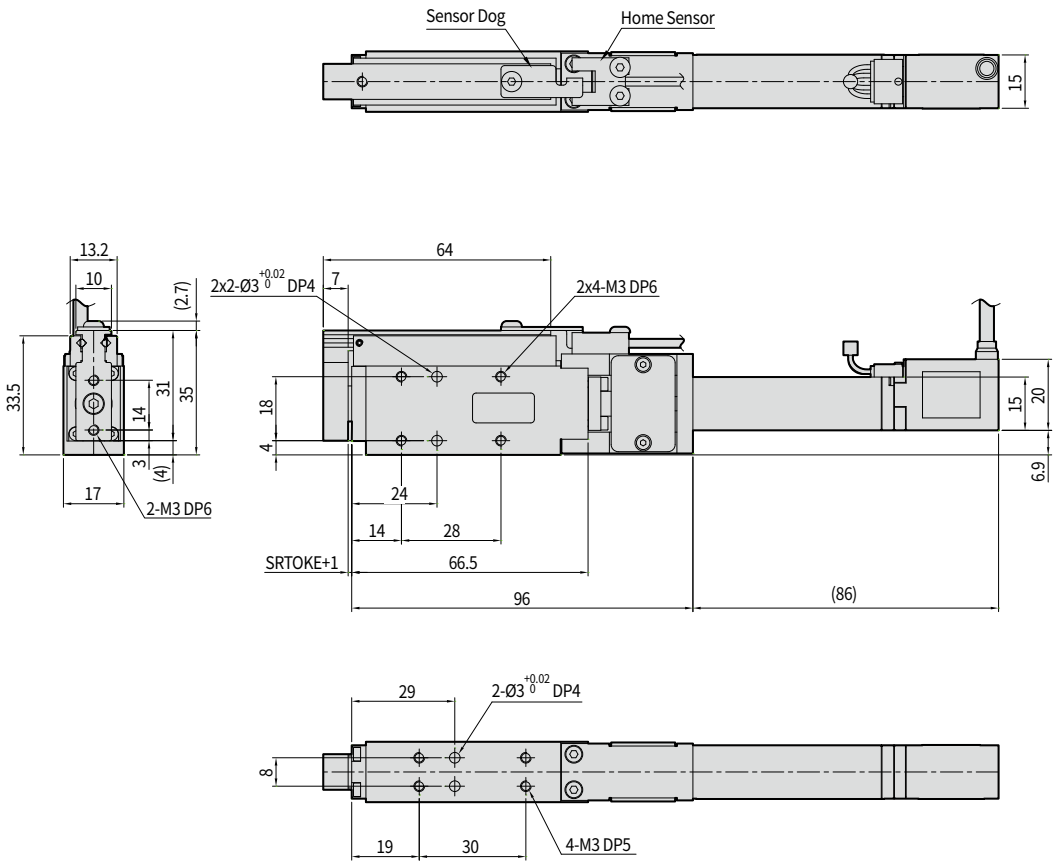
   Example) stroke = 30mm, target time = 0.2 second ⇨ 30mm/0.2s = 150mm/s

3. Select the model with reference to the load orientation and speed-load weight graph.
   Example) Select ETB16-40 which has vertical load of 2Kg and performance faster than 150mm/s

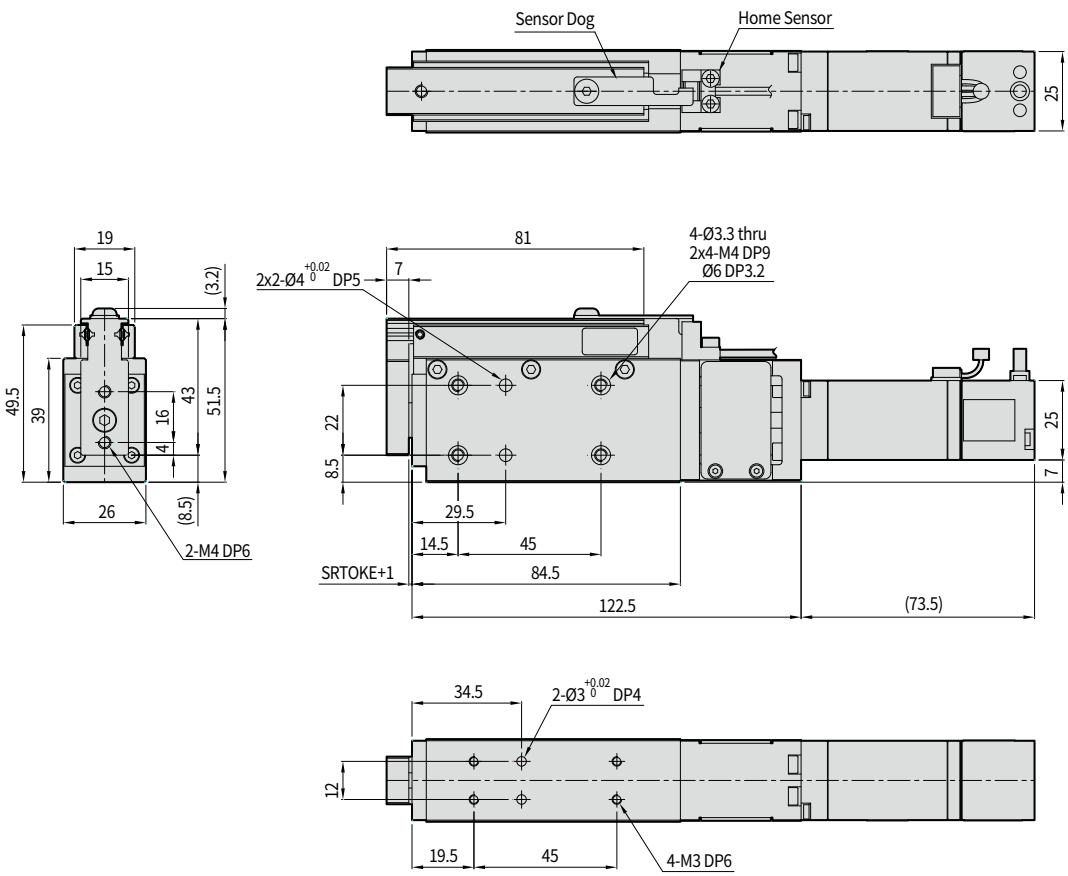


ETB Series

ETB10-30

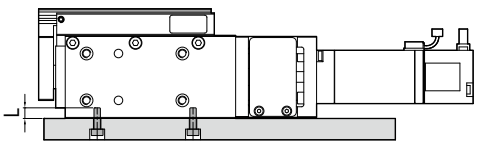


ETB16-40


Sensor Dog
Home Sensor
25
19
15
(3.2)
49.5
39
43
16
4
51.5
26
(8.5)
2-M4 DP6
81
7
2x2-Ø4 +0.02 0 DP5
4-Ø3.3 thru
2x4-M4 DP9
Ø6 DP3.2
22
8.5
25
7
29.5
14.5
45
SRTOKE+1
84.5
122.5
(73.5)
34.5
2-Ø3 +0.02 0 DP4
12
19.5
45
4-M3 DP6

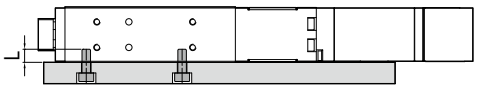
Installation Information

1. Installation by body through holes



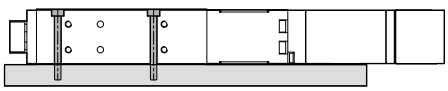
Item	Fastening Bolt	Max Torque (kgf·cm)	Max Bolt Length L (mm)
ETB10	M3×P0.5	11	5
ETB16	M3×P0.5	11	6

2. Installation by body tap holes



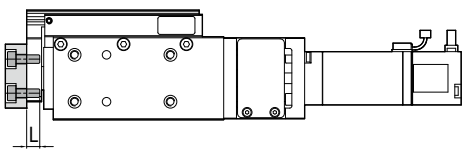
Item	Fastening Bolt	Max Torque (kgf·cm)	Max Bolt Length L (mm)
PSB06	M4×P0.7	25	8
PSB08	M4×P0.7	25	8

3. Installation by table tap holes



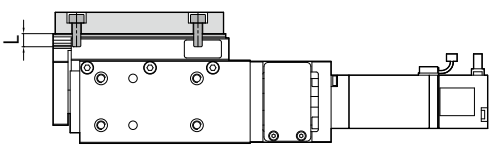
Item	Fastening Bolt	Max Torque (kgf·cm)
ETB10	Not usable	
ETB16	M3×P0.5	11

4. Installation by plate tap holes



Item	Fastening Bolt	Max Torque (kgf·cm)	Max Bolt Length L (mm)
ETB10	M3×P0.5	11	6
ETB16	M4×P0.7	25	6

5. Installation by body through holes



Item	Fastening Bolt	Max Torque (kgf·cm)	Max Bolt Length L (mm)
ETB10	M3×P0.5	11	4
ETB16	M4×P0.7	25	5