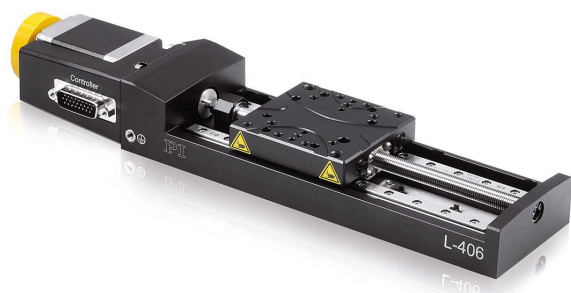


## L-406 Compact Linear Stage

For loads up to 10 kg



- Travel ranges from 26 mm to 102 mm (1" to 4")
- Stepper motor or DC servo motor with and without gearhead
- Direction-sensing reference point switch
- Integrated optical limit switches

### Precision-class linear stage

The linear stage has a ground precision leadscrew that ensures smooth running. The combination of recirculating ball bearing and the stress-relieved aluminum base ensures good performance data.

### Drive types

- .xxDD variant: DC servo motor for an average velocity up to 20 mm/s
- .xxDG variant: DC servo motor with gearhead for high torques and resolution at low motor power
- .xxSD variant: 2-phase stepper motor

Noncontact limit switches. Noncontact optical reference point switch with direction sensing in the middle of the travel range.

### Position measurement

Integrated rotary encoder on the motor shaft (variants with DC servo motor).

### Fields of application

Precision positioning in industry and research, inspection, micromanipulation.

## Related and Compatible Products

### Compatible electronics

C-863 Mercury Servo Controller

C-863.20C885 DC Motor Controller Module  
 C-884 Four-Axis Motion Controller  
 C-663 Mercury Step Controller  
 SMC Hydra Motion Controller

#### Compatible accessories

L-500 Adapter Bracket

#### Related products

M-122 Precision Micro-Translation Stage  
 L-509 Precision Linear Stage  
 L-511 High-Precision Linear Stage  
 M-403 Precision Translation Stage  
 M-404 Precision Translation Stage  
 M-406 Precision Linear Stage

## Specifications

	L-406.10DD10 L-406.20DD10 L-406.40DD10	L-406.10DG10 L-406.20DG10 L-406.40DG10	L-406.10SD00 L-406.20SD00 L-406.40SD00	Unit	Tolerance
	Linear stage with DC motor and rotary encoder	Linear stage with DC gear motor and rotary encoder	Linear stage with stepper motor		
Active axis	X	X	X		
<b>Motion and positioning</b>					
Travel range*	26 / 52 / 102	26 / 52 / 102	26 / 52 / 102	mm	max.
Integrated sensor	Rotary encoder	Rotary encoder	–		
Sensor resolution rotary encoder	1024	512	–	cts./rev.	
Design resolution	0.244	0.0165	0.313**	µm	
Minimum incremental motion	0.5	0.2	0.2	µm	typ.
Unidirectional repeatability	0.5	0.5	0.5	µm	typ.
Backlash	±3	±3	±3	µm	typ.
Crosstalk, rotational (pitch, yaw)	±70 / ±90 / ±100	±70 / ±90 / ±100	±70 / ±90 / ±100	µrad	typ.
Linear crosstalk (straightness, flatness)	2 / 4 / 6	2 / 4 / 6	2 / 4 / 6	µm	

Max. velocity	20	3	20	mm/s	max.
<b>Mechanical properties</b>					
Load capacity	100	100	100	N	max.
Push/pull force	15	100	50	N	max.
Permissible lateral force	50	50	50	N	max.
Holding force	25	50	50	N	max.
<b>Drive properties</b>					
Spindle pitch	1	1	1	mm	
Gear ratio		2401:81	–		
Motor type	DC motor	DC gear motor	2-phase stepper motor		
Operating voltage	0 to ±24	0 to ±12	24	V	
Motor power	21	4	5.4	W	nominal
Reference and limit switches	Optical	Optical	Optical		
<b>Miscellaneous</b>					
Operating temperature range	-20 to 65	-20 to 65	-20 to 65	°C	
Material	Aluminum, steel	Aluminum, steel	Aluminum, steel		
Mass	0.9 / 0.9 / 1.1	0.89 / 0.9 / 1.09	0.99 / 1.1 / 1.19	kg	
Connector	HD Sub-D 26 (m)	HD Sub-D 26 (m)	HD Sub-D 26 (m)		
Recommended controller/driver	C-863 (single axis), C-884 (up to 4 axes)	C-863 (single axis), C-884 (up to 4 axes)	C-663.11 (single axis)		

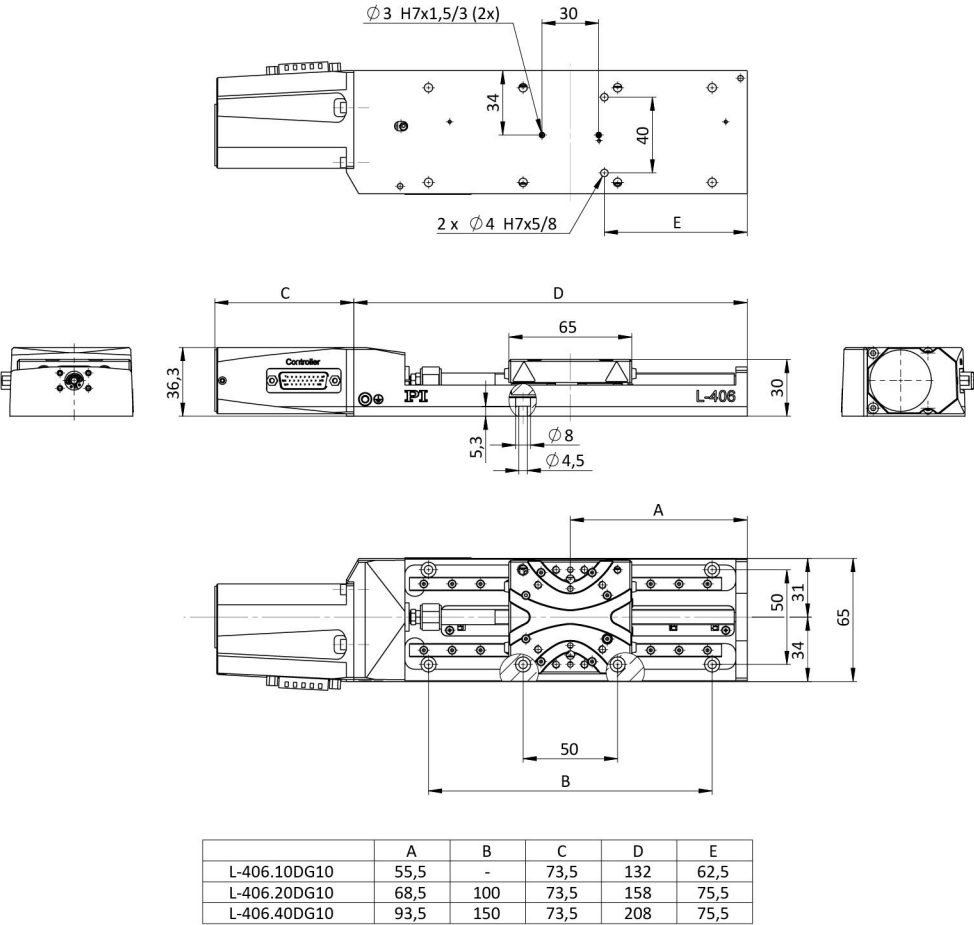
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All cables required for operation with the recommended controller are included in the scope of delivery. The cable length is 3 m. Cable for connecting to other controllers can be ordered as accessory.

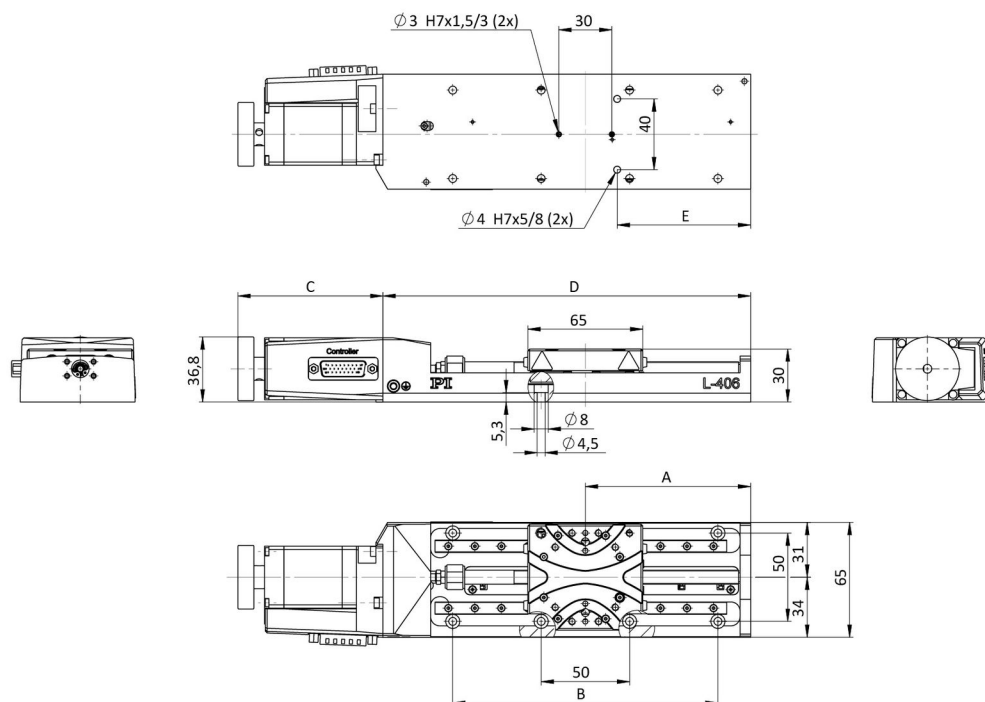
\* Travel ranges of the variants: L-406.1: 26 mm (1"), L-406.2: 52 mm (2"), L-406.4: 102 mm (4").

\*\* 200 full steps/rev.

## Drawings and Images

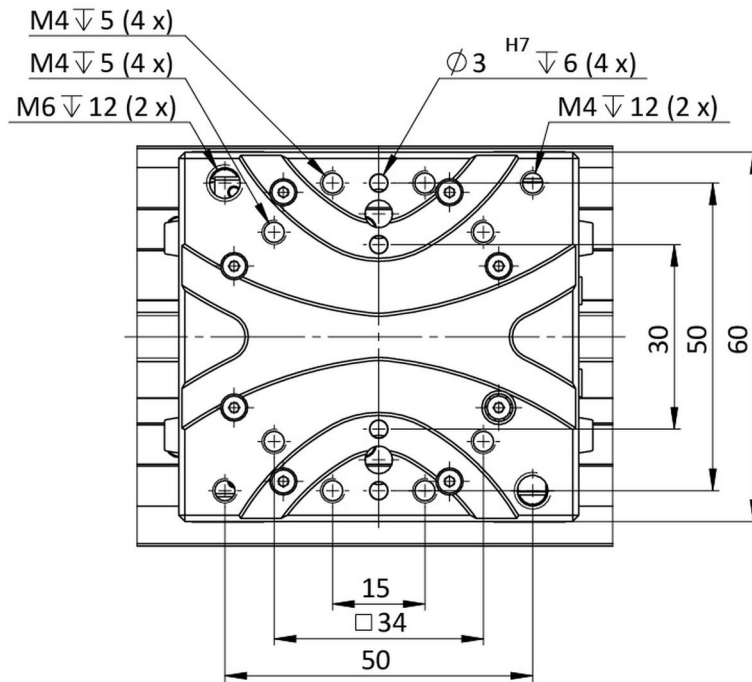


L-406 with DC gear motor, dimensions in mm



	A	B	C	D	E
L-406.10SD00	55,5	-	82	132	62,5
L-406.20SD00	68,5	100	82	158	75,5
L-406.40SD00	93,5	150	82	208	75,5

*L-406 with stepper motor, dimensions in mm*



*Detail drawing of the sled of the L-406, dimensions in mm*



*L-406 linear stages can be combined without adapter plate for multi-axis positioning on several axes.*



*L-406 with DC motor*



## Ordering Information

### **L-406.10DD10**

Compact Linear Positioning Stage, 65 mm Wide, DC Motor, 26 mm Travel Range, Optical Limit Switches

### **L-406.20DD10**

Compact Linear Positioning Stage, 65 mm Wide, DC Motor, 52 mm Travel Range, Optical Limit Switches

### **L-406.40DD10**

Compact Linear Positioning Stage, 65 mm Wide, DC Motor, 102 mm Travel Range, Optical Limit Switches

### **L-406.10DG10**

Compact Linear Positioning Stage, 65 mm Wide, DC Gear Motor, 26 mm Travel Range, Optical Limit Switches

### **L-406.20DG10**

Compact Linear Positioning Stage, 65 mm Wide, DC Gear Motor, 52 mm Travel Range, Optical Limit Switches

### **L-406.40DG10**

Compact Linear Positioning Stage, 65 mm Wide, DC Gear Motor, 102 mm Travel Range, Optical Limit Switches

### **L-406.10SD00**

Compact Linear Positioning Stage, 65 mm Wide, Stepper Motor, 26 mm Travel Range, Optical Limit Switches

### **L-406.20SD00**

Compact Linear Positioning Stage, 65 mm Wide, Stepper Motor, 52 mm Travel Range, Optical Limit Switches

### **L-406.40SD00**

Compact Linear Positioning Stage, 65 mm Wide, Stepper Motor, 102 mm Travel Range, Optical Limit Switches

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