

L-406 Compact Linear Stage

For loads up to 10 kg



L-406 linear stages can be combined for multi-axis positioning

- 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



L-406 with DC motor

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.

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		
Motion and positioning					
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.
Mechanical properties					
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.
Drive properties					
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		

Miscellaneous

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)		

Ask about custom designs!

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.

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

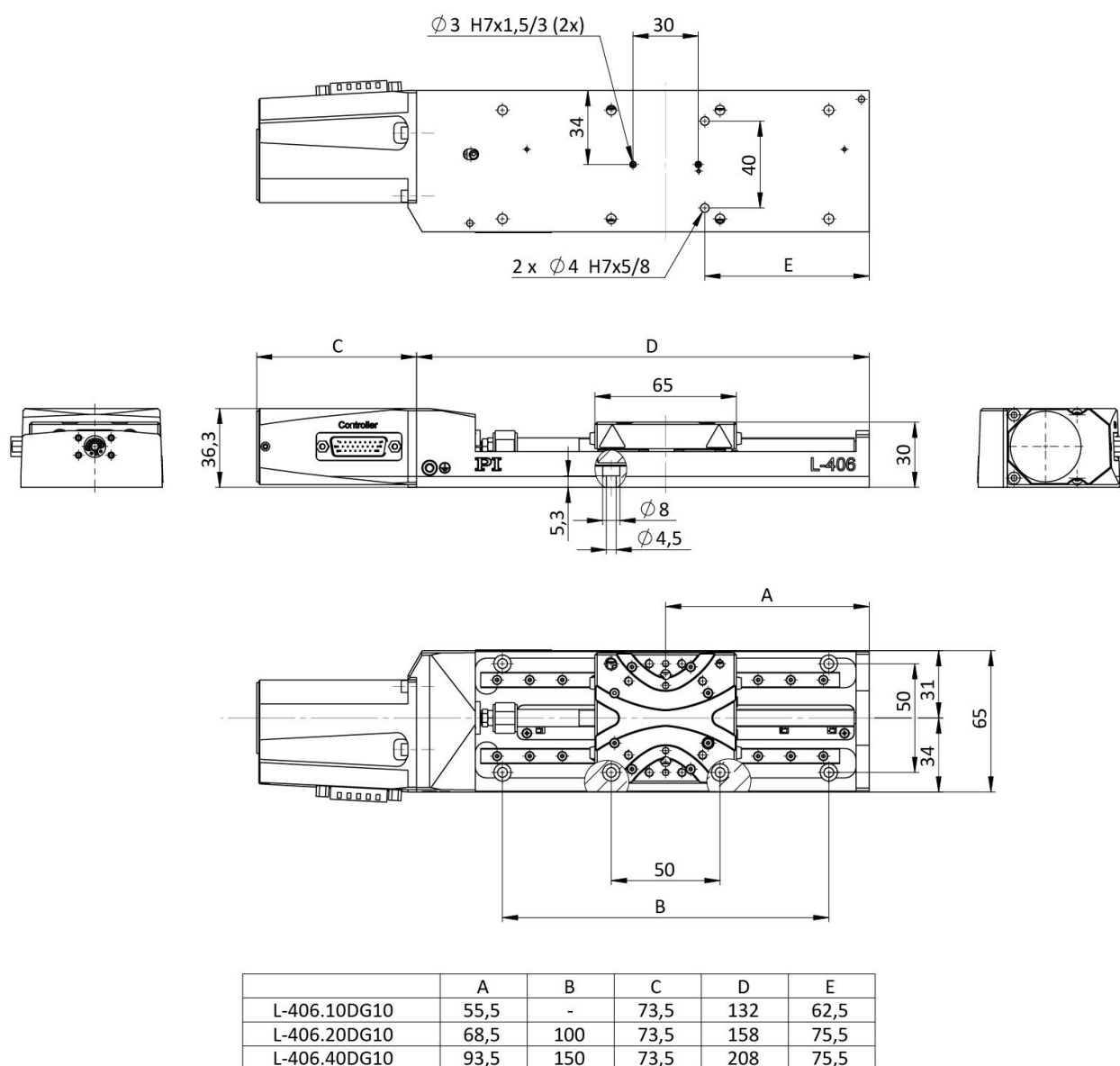
L-406.20SD00

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

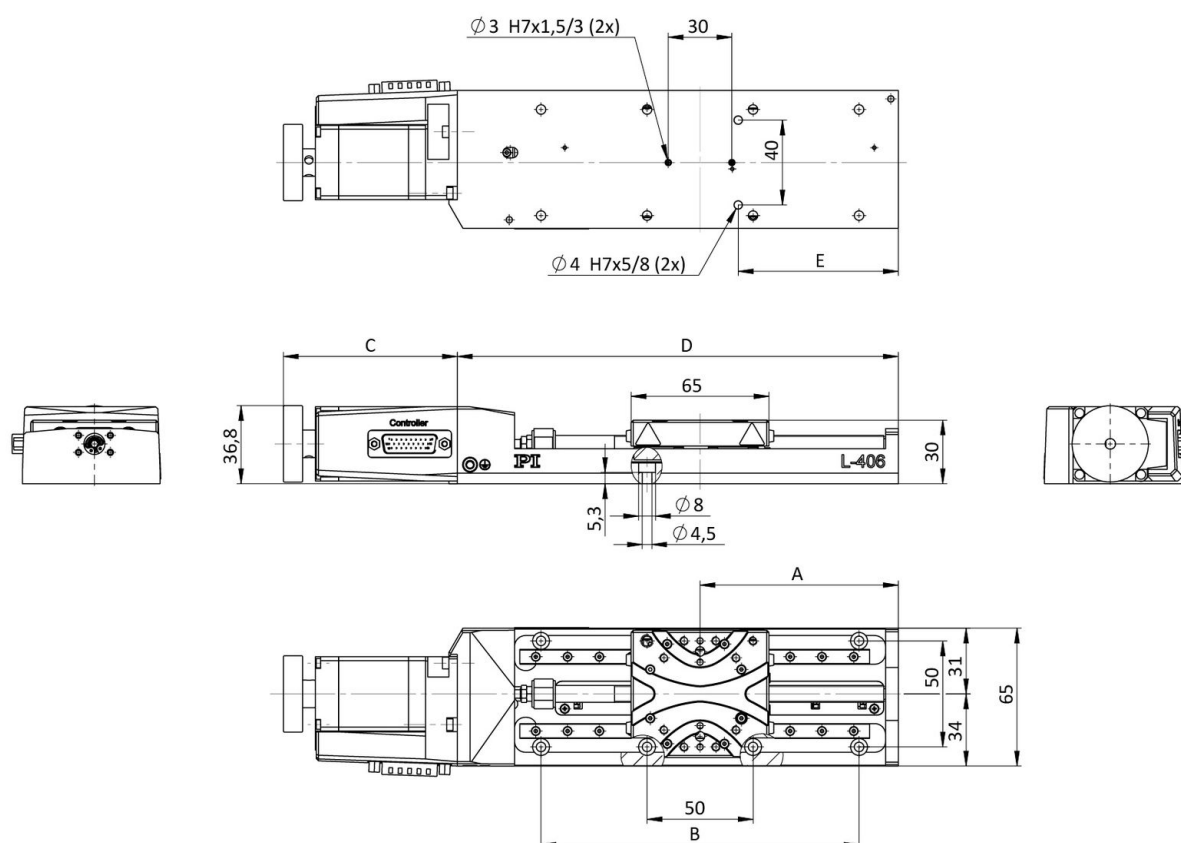
L-406.40SD00

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

Drawings and Images

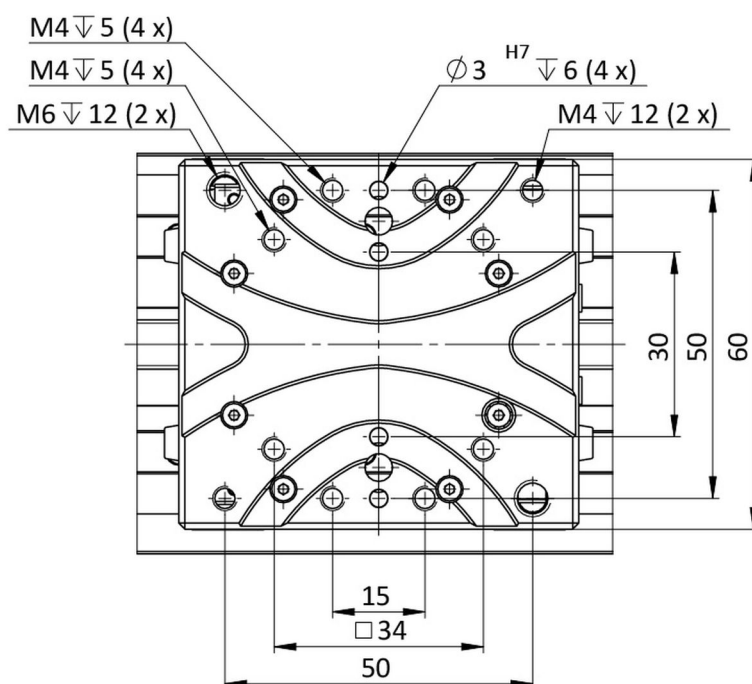


L-406 with DC gear motor, dimensions in mm



	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