

High-Resolution Linear Actuator

Suitable for a High Number of Cycles



L-220

- Forces up to 125 N
- Travel ranges 13 to 77 mm (½" to 3")
- DC or stepper motor
- Vacuum-compatible versions to 10⁻⁹ hPa on request

Reference-class linear drive

Combines high precision, high forces, and high dynamics. Versions available for vacuum environments to 10⁻⁹ hPa.

High-quality components

Ball screw for smooth feed. Nonrotating tip for uniform motion prevents wobble, torque, and wear at the point of contact. Incl. flat and spherical tip for decoupling forces. Noncontact limit switches protect the mechanics. A direction-sensing reference point switch supports automation applications. Position-controlled variants with differential encoder driver in the connector for safe signal transfer over distances up to 10 m.

Motor variants

- Position-controlled DC motors with a gearhead and high-resolution rotary encoders allow for incremental motion of just 100 nm
- High-performance and low-vibration 2-phase stepper motors with gear ratio allow precision positioning even without position control

Application fields

Research, Automation, Optical alignment

Specifications

	L-220.x0DG	L-220.x0SG	Unit	Tolerance
Motion axes	High precision, with DC gear motor X	Stepper motor with gearhead X		

Motion and positioning	L-220.x0DG	L-220.x0SG	Unit	Tolerance
Travel range	13 / 26 / 52 / 77	13 / 26 / 52 / 77	mm	
Integrated sensor	Rotary encoder	–		
Sensor resolution	2048	–	Cts./rev.	
Design resolution	0.022	0.55 (full step)	µm	typ.
Minimum incremental motion	0.1	0.1	µm	typ.
Unidirectional repeatability	0.5	0.5	µm	typ.
Bidirectional repeatability	±1	±1	µm	typ.
Velocity	3.5	0.8	mm/s	max.

Mechanical properties	L-220.x0DG	L-220.x0SG	Unit	Tolerance
Drive screw type	Ball screw	Ball screw		
Thread pitch	1	1	mm	
Gear ratio	12493:567	387283:5103		
Motor resolution	–	384 (29184)	steps/rev.	
Push/pull force	125	125	N	max.
Holding force	80	125	N	typ.
Permissible lateral force	1	1	N	max.

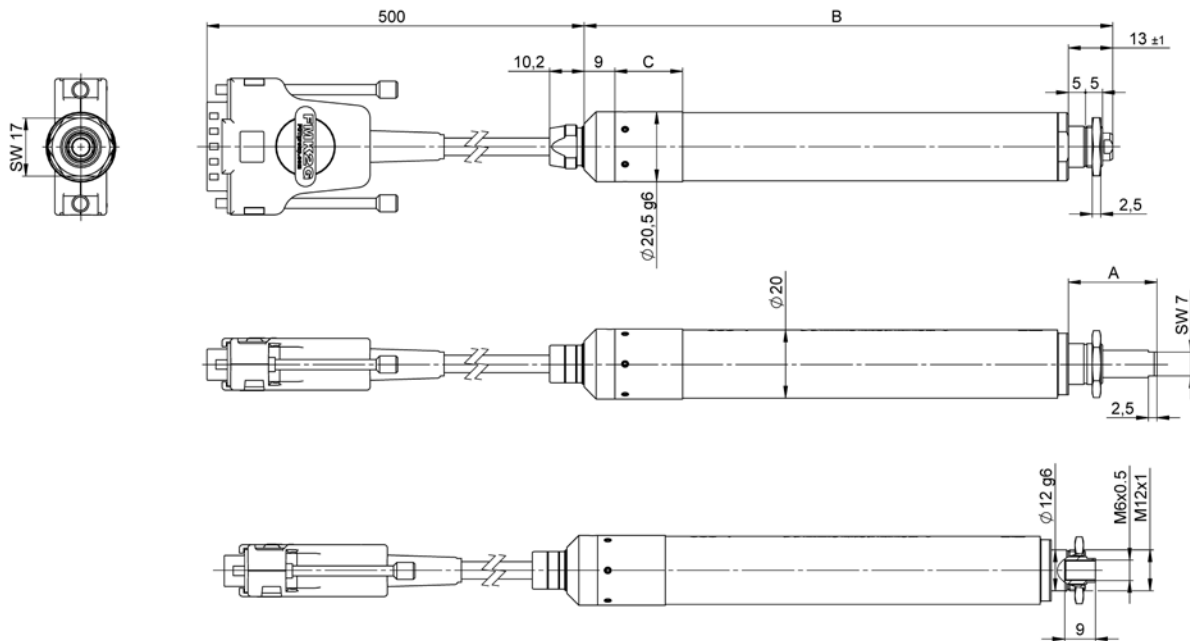
Drive properties	L-220.x0DG	L-220.x0SG	Unit	Tolerance
Motor type	DC motor with gearhead	2-phase stepper motor with gearhead		
Operating voltage, nominal	12	12	V	nom.
Operating voltage, max.	24	48	V	max.
Step resolution	–	24	Full steps/rev.	
Limit and reference point switches	Hall effect	Hall effect		

Miscellaneous	L-220.x0DG	L-220.x0SG	Unit	Tolerance
Operating temperature range	5 to 40	5 to 40	°C	
Material	Stainless steel, red brass	Stainless steel, red brass		
Mass	0.21 / 0.23 / 0.26 / 0.29	0.23 / 0.25 / 0.28 / 0.32	kg	±5 %
Moved mass	0.02 / 0.02 / 0.025 / 0.030	0.02 / 0.02 / 0.025 / 0.030	kg	±5 %
Cable length	0.5	0.5	m	±10 mm
Connector	HD Sub-D 26 (m)	HD Sub-D 26 (m)		
Recommended controllers/drivers	C-863 (single axis) C-884 (up to 6 axes) C-885 with C-863.20C885 (to 40 axes) ACS modular controller	C-663.12 (single axis) SMC Hydra (double axis) C-885 with C-663.12C885 (up to 20 axes) ACS modular controller		

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.

Ask about customized versions.

Drawings / Images



	Travel	A	B	C
L-220.10SG	13	26	148.3	13
L-220.10DG	13	26	155.2	19.9
L-220.20SG	26	39	161.5	13
L-220.20DG	26	39	168.4	19.9
L-220.50SG	52	65	186.6	13
L-220.50DG	52	65	193.5	19.9
L-220.70SG	77	90	211.6	13
L-220.70DG	77	90	218.5	19.9

L-220, dimensions in mm



L-220.70SG with stepper motor with gearhead



L-220 linear actuators are available in various length versions and with DC or stepper motor with gearhead

Ordering Information

L-220.10DG

High-resolution linear actuator, DC gear motor, 13 mm (0.5") travel range, Hall effect limit switches, including 3 m cable set

L-220.20DG

High-resolution linear actuator, DC gear motor, 26 mm (1") travel range, Hall effect limit switches, including 3 m cable set

L-220.50DG

High-resolution linear actuator, DC gear motor, 52 mm (2") travel range, Hall effect limit switches, including 3 m cable set

L-220.70DG

High-resolution linear actuator, DC gear motor, 77 mm (3") travel range, Hall effect limit switches, including 3 m cable set

L-220.10SG

High-resolution linear actuator, stepper motor with gearhead, 13 mm (0.5") travel range, Hall effect limit switches, including 3 m cable set

L-220.20SG

High-resolution linear actuator, stepper motor with gearhead, 26 mm (1") travel range, Hall effect limit switches, including 3 m cable set

L-220.50SG

High-resolution linear actuator, stepper motor with gearhead, 52 mm (2") travel range, Hall effect limit switches, including 3 m cable set

L-220.70SG

High-resolution linear actuator, stepper motor with gearhead, 77 mm (3") travel range, Hall effect limit switches, including 3 m cable set