

L-220 High-Resolution Linear Actuator

Suitable for a High Number of Cycles



- Forces of up to 125 N
- Travel ranges 13 to 77 mm (½" to 3")
- MTBF > 10,000 h
- Vacuum-compatible versions to 10^{-9} hPa on request

Reference-class linear drive

Combines high precision, high forces, and high dynamics. Versions for vacuum environment to 10^{-9} hPa available.

High-quality components

Ball screw for high number of cycles and 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

Related and Compatible Products

Compatible electronics

C-663 Mercury Step Controller

C-863 Mercury Servo Controller

C-884 Four-Axis Motion Controller

Related products

M-228 • M-229 High-Resolution Linear Actuator with Stepper Motor

M-230 High-Resolution Linear Actuator with DC and Stepper Motor

M-235 High-Resolution Linear Actuator with DC Motor

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				
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)* 0.034 (with C-663.11)	µm	typ.
Minimum incremental motion	0.1	0.1	µm	typ.
Backlash	1.5	1.5	µm	typ.
Unidirectional repeatability	1	1	µm	typ.
Velocity	3.5	0.8	mm/s	max.
Mechanical properties				
Thread pitch Ball screw	1	1	mm	
Gear ratio	29.6:1	76:1		
Motor resolution	–	384 (29184)*	steps/rev.	
Push/pull force	125	125	N	max.
Permissible lateral force	1	1	N	max.

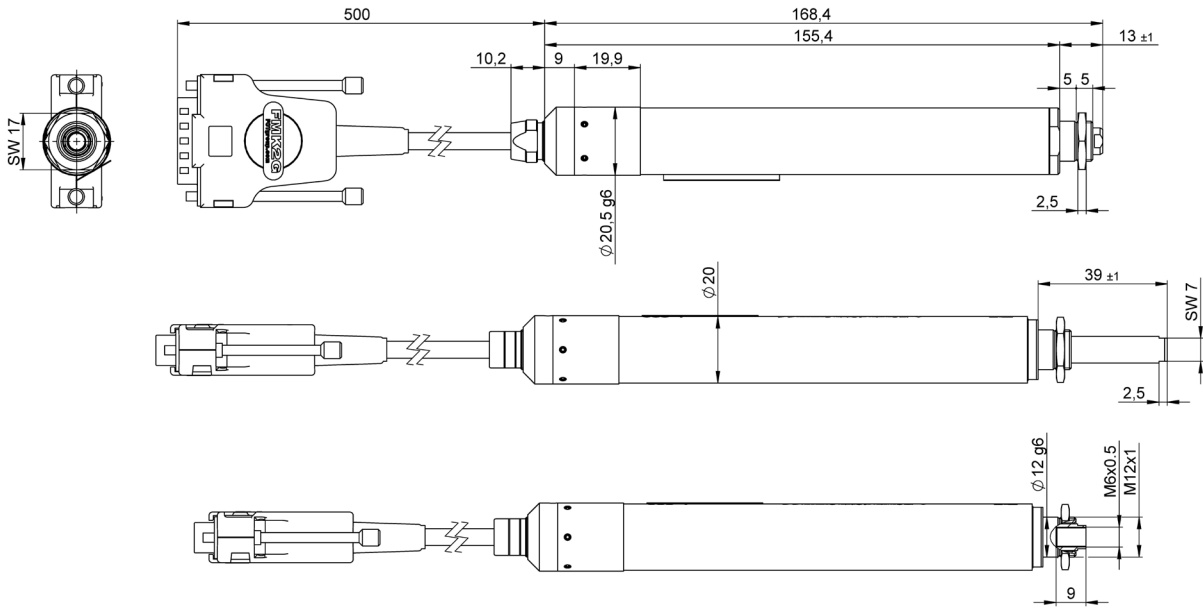
Drive properties				
Motor Type	DC motor with gearhead	2-phase stepper motor* with gearhead		
Operating voltage	±12		V	
Limit and reference point switches	Hall effect	Hall effect		
Miscellaneous				
Operating temperature range	-20 to 65	-20 to 65	°C	
Material	Stainless steel, red brass	Stainless steel, red brass		
Mass	0.21 / 0.22 / 0.26 / 0.29	0.21 / 0.22 / 0.26 / 0.29	kg	±5 %
Cable length	0.5	0.5	m	±10 mm
Connector	HD Sub-D 26 (motor and rotary encoder) to Sub-D 15, 0.5 m cable	HD Sub-D 26 (motor) to Sub-D 15, 0.5 m cable		
Recommended controller/driver	C-863 (single axis) C-884 (up to 4 axes)	C-663 (single axis)		

* 24 full steps/rev., max. 0.32 A/phase.

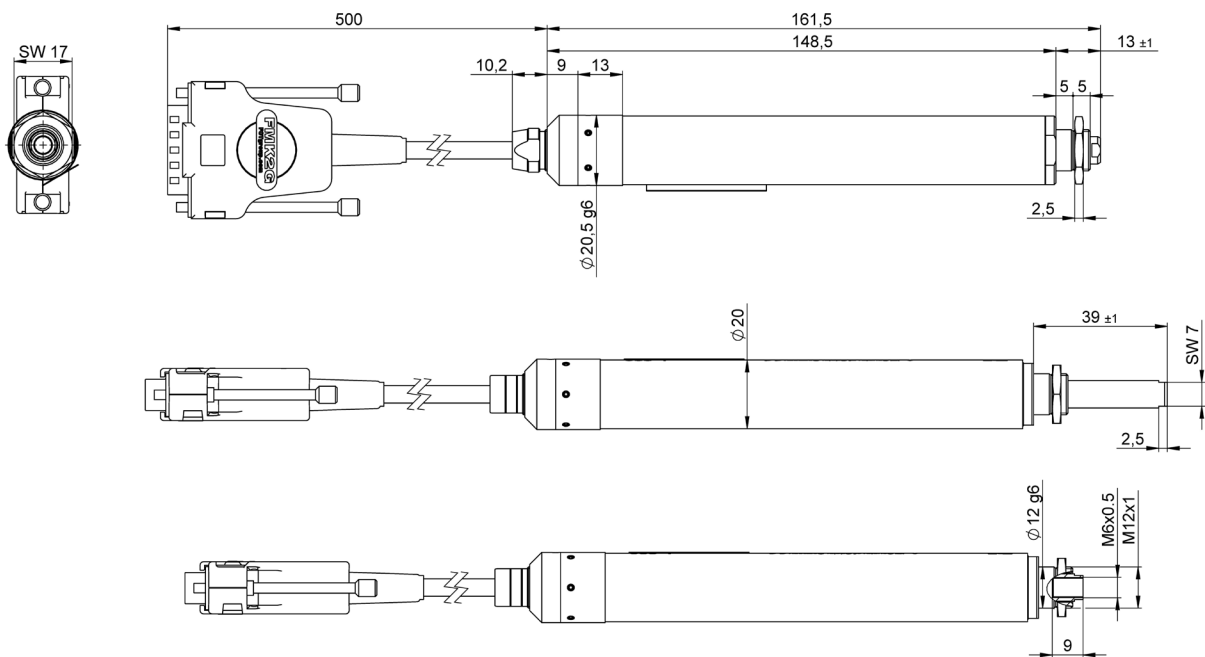
3 m extension cable included.

Ask about custom designs!

Drawings and Images



L-220 with DC gear motor, dimensions in mm



L-220 with stepper motor with gearhead, 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, Magnetic Limit Switches

L-220.20DG

High-Resolution Linear Actuator, DC Gear Motor, 26 mm (1") Travel Range, Magnetic Limit Switches

L-220.50DG

High-Resolution Linear Actuator, DC Gear Motor, 52 mm (2") Travel Range, Magnetic Limit Switches

L-220.70DG

High-Resolution Linear Actuator, DC Gear Motor, 77 mm (3") Travel Range, Magnetic Limit Switches

L-220.10SG

High-Resolution Linear Actuator, Stepper Motor with Gearhead, 13 mm (0.5") Travel Range, Magnetic Limit Switches

L-220.20SG

High-Resolution Linear Actuator, Stepper Motor with Gearhead, 26 mm (1") Travel Range, Magnetic Limit Switches

L-220.50SG

High-Resolution Linear Actuator, Stepper Motor with Gearhead, 52 mm (2") Travel Range, Magnetic Limit Switches

L-220.70SG

High-Resolution Linear Actuator, Stepper Motor with Gearhead, 77 mm (3") Travel Range, Magnetic Limit Switches

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