

High-Load Linear Actuator

Dynamic, High-Resolution Precision Drive with DC Motor and Direct Position Measuring



M-238

- Optional: Linear encoder for direct position measuring
- High load capacity to 400 N
- Travel range 50 mm
- Resolution to 0.1 μm
- Velocity to 30 mm/s

Reference-class linear drive

High-resolution, high-load linear actuator. Highly dynamic, closed-loop DC motors for high velocities.

High-quality components

Recirculating ball screw provides high velocity and long lifetime. Low-friction output shaft bearing can handle lateral forces to 100N. Nonrotating end piece for uniform motion prevents wobble, torque, and wear at the point of contact. Includes flat and spherical end piece for decoupling of lateral and tilt forces. Noncontact limit switches protect the mechanical system. A direction-sensing reference switch supports automation applications

Highly accurate position measuring with incremental linear encoder

Noncontact optical encoders measure the position directly at the platform with the greatest accuracy. Nonlinearity, mechanical play or elastic deformation have no influence on the measurement.

Application fields

Precision alignment, external drive element for guided systems.

Specifications

Motion and positioning	M-238.5PG	M-238.5PL	Unit	Tolerance
Travel range	50	50	mm	
Integrated sensor	Rotary encoder	Linear encoder		
Sensor resolution	4000 cts/rev	0.1 μ m		
Design resolution	0.13	0.1	μ m	Typ.
Minimum incremental motion	0.5	0.3	μ m	Typ.
Backlash	3	1	μ m	Typ.
Unidirectional repeatability	± 1	± 0.3	μ m	Typ.
Velocity	30	30	mm/s	Max.
Reference switch repeatability	1	1	μ m	Typ.

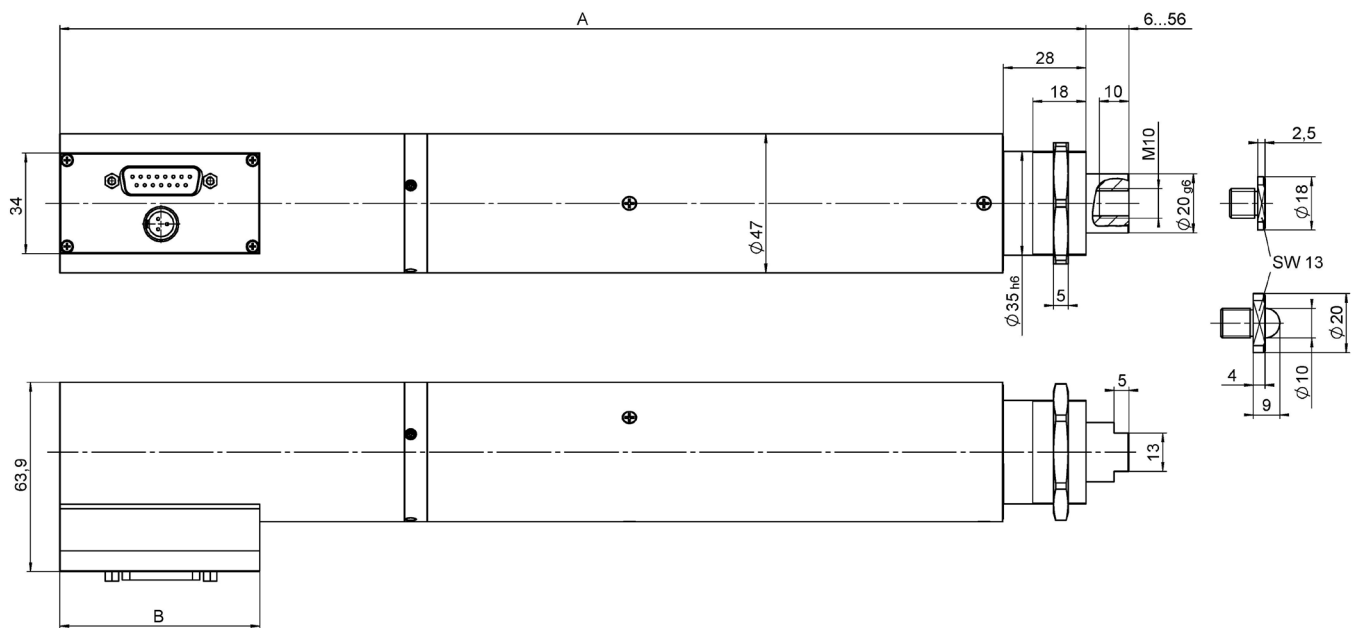
Mechanical properties	M-238.5PG	M-238.5PL	Unit	Tolerance
Drive screw pitch	2	2	mm	
Gear ratio	3.71:1	3.71:1		
Push/pull force	400	400	N	Max.
Permissible lateral force	100	100	N	Max.

Drive properties	M-238.5PG	M-238.5PL	Unit	Tolerance
Motor type	DC motor, ActiveDrive	DC motor, ActiveDrive		
Motor voltage	24 V	24 V	V	
Motor power	80	80	W	Nominal

Miscellaneous	M-238.5PG	M-238.5PL	Unit	Tolerance
Operating temperature range	-10 to 50	-10 to 50	$^{\circ}$ C	
Material	Aluminum anodized, chrome steel	Aluminum anodized, chrome steel		
Mass	2.4	2.4	kg	± 5 %
Connector	D-sub 15 (m)	D-sub 15 (m)		
Recommended controllers / drivers	C-863, C-884	C-863, C-884		

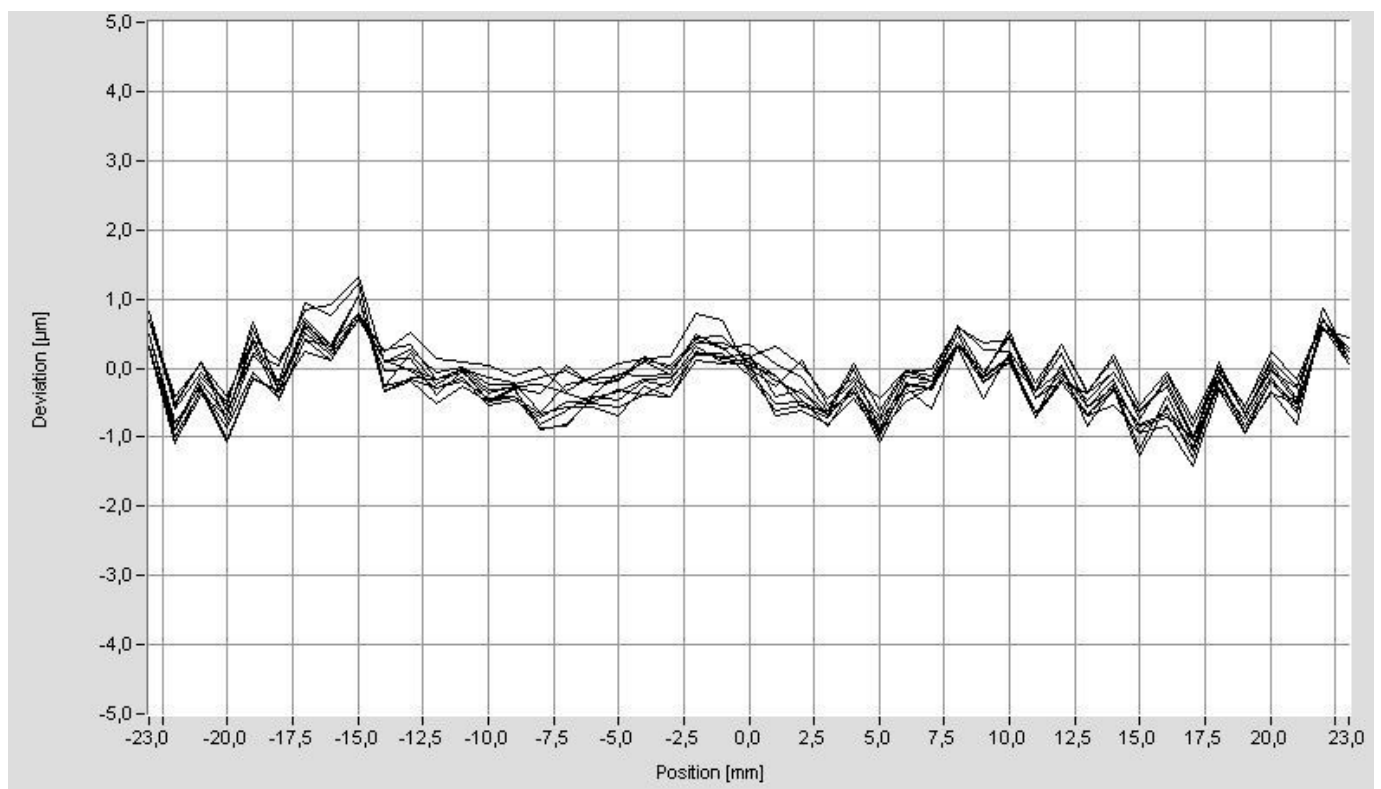
Connecting cables are not in the scope of delivery and must be ordered separately.
Ask about customized versions.

Drawings / Images

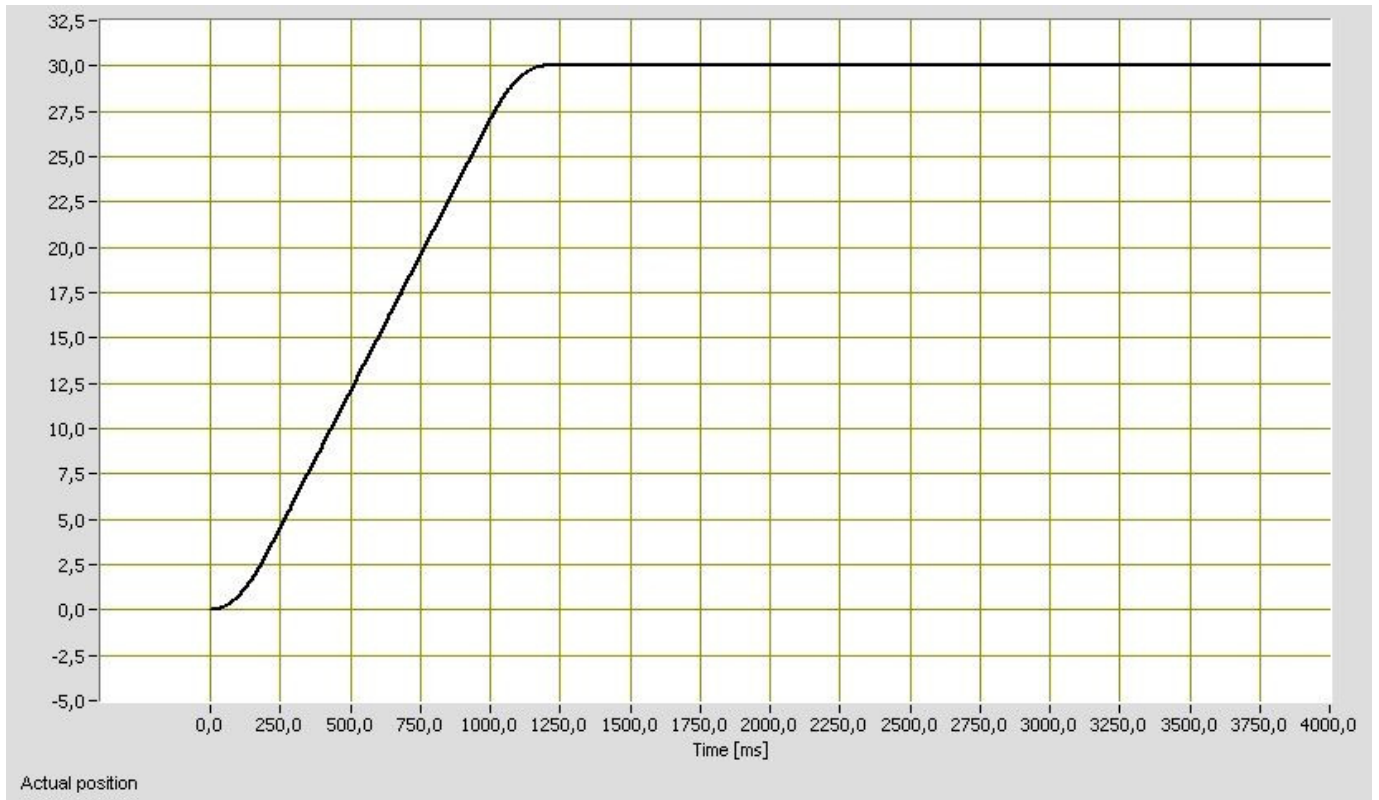


	A	B
M-238.5PL	336,2	90
M-238.5PG	347,2	67,6

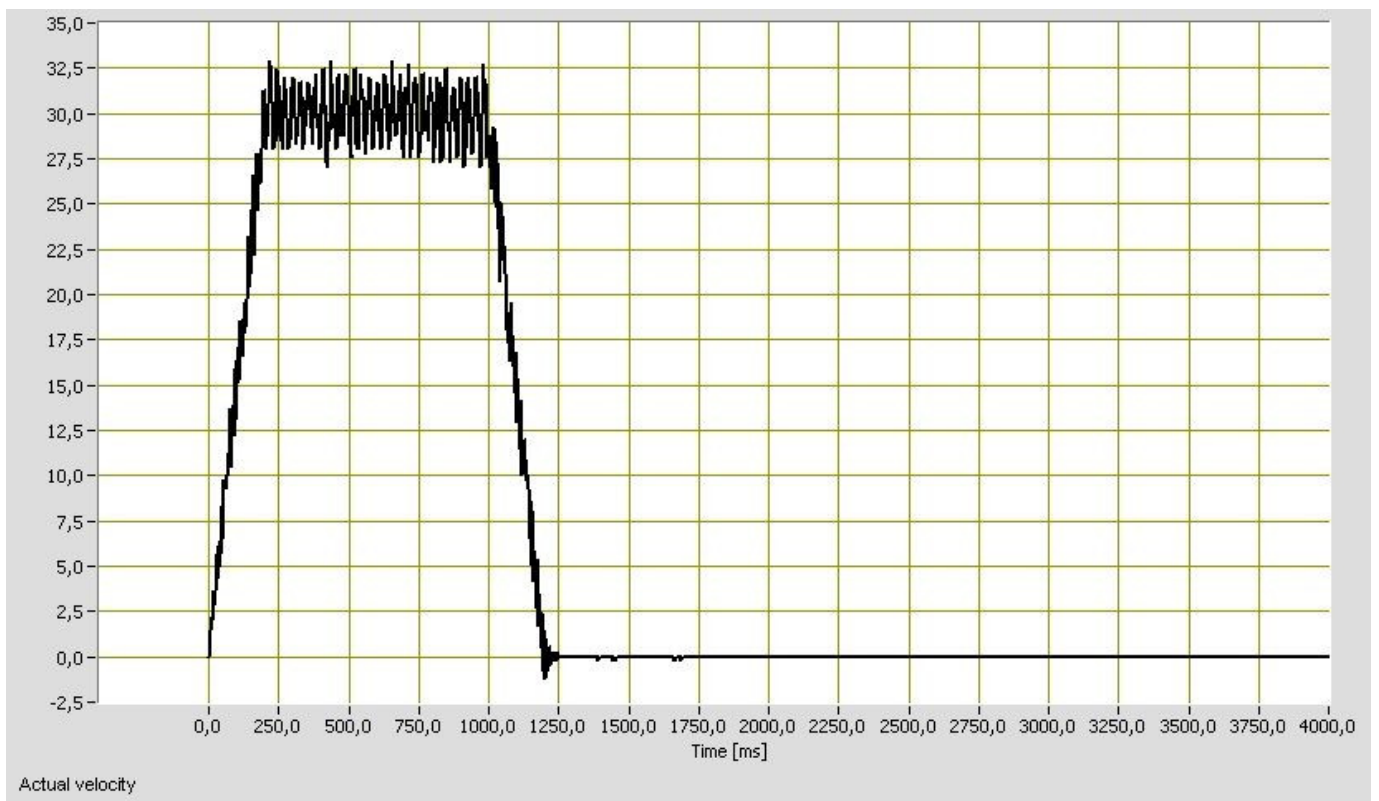
M-238, dimensions in mm



The repeatability of the M-238.5PL with linear encoder is less than 0.3 µm.



The M-238 requires less than 1.5 seconds for a 30-mm step.



The velocity constancy of an M-238.5PL at 30 mm/s.

Ordering Information

M-238.5PG

High-load linear actuator, 400 N, 50 mm, DC gear motor, ActiveDrive

M-238.5PL

High-load linear actuator, 400 N, 50 mm, DC gear motor, ActiveDrive, direct position measuring