

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 up 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

Ball screw for high velocities and a high number of cycles. Stable bearing at shaft output reduces lateral forces on the pusher. 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 switch supports automation applications

Highly-accurate position measuring with incremental linear encoder

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

Application fields

Precision alignment, external drive element for guided systems.

Motion	Unit		M-238.5PG	M-238.5PL
Active axes			X	X
Travel range in X	mm		50	50
Maximum velocity in X, unloaded	mm/s		30	30

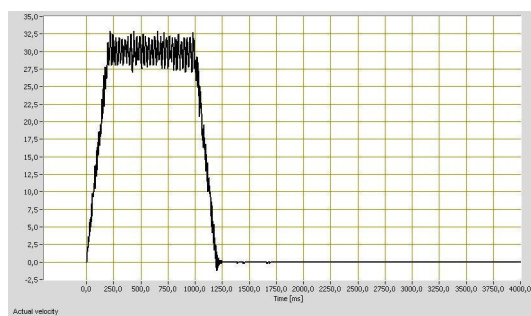
Positioning	Unit	Tolerance	M-238.5PG	M-238.5PL
Minimum incremental motion in X	μm	Typ.	0.5	0.3
Unidirectional repeatability in X	μm	Typ.	± 1	± 0.3
Backlash in X	μm	Typ.	3	1
Reference switch			Hall effect	Hall effect
Reference switch repeatability	μm		1	1
Limit switches			Hall effect	Hall effect
Integrated sensor			Incremental rotary encoder	Incremental linear encoder
Sensor resolution	nm			100
Sensor resolution	Cts./rev.		4000	

Drive Properties	Unit	Tolerance	M-238.5PG	M-238.5PL
Drive type			DC gear motor with ActiveDrive	DC gear motor with ActiveDrive
Nominal voltage	V		24	24
Drive force in X	N	Typ.	400	400

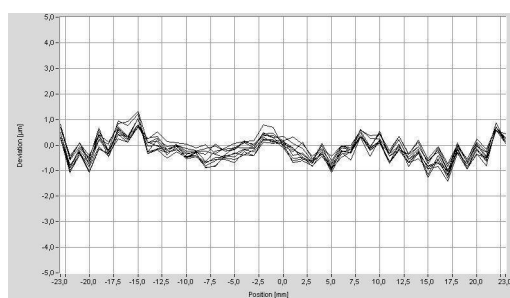
Mechanical Properties	Unit	Tolerance	M-238.5PG	M-238.5PL
Permissible push force in Y	N	Max.	100	100
Drive screw type			Ball screw	Ball screw
Drive screw pitch	mm		2	2
Gear ratio i			3,71 : 1	3,71 : 1
Overall mass	g		2400	2400
Material			Aluminum anodized, chrome steel	Aluminum anodized, chrome steel

Miscellaneous	Unit		M-238.5PG	M-238.5PL
Operating temperature range	°C		-10 to 50	-10 to 50
Connector			D-sub 15-pin (m)	D-sub 15-pin (m)
Recommended controllers / drivers			C-863.12 C-885 with C-863.20C885 C-884	C-863.12 C-885 with C-863.20C885 C-884

Drawings / Images

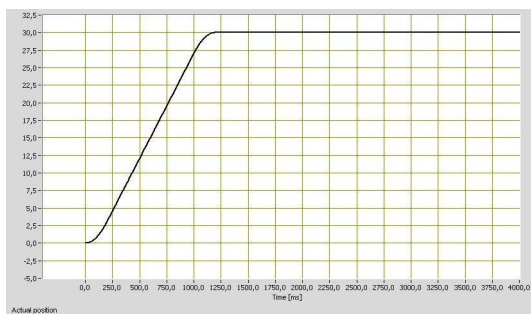


The velocity constancy of an M-238.5PL at 30mm/s.

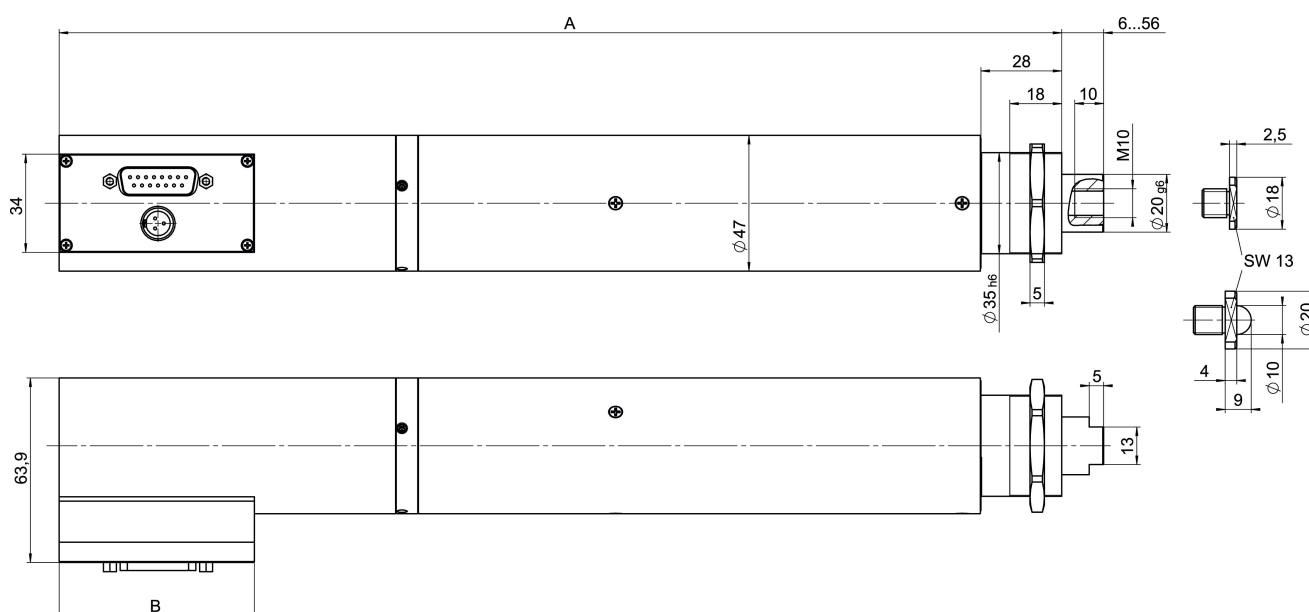


The repeatability of the M-238.5PL with linear encoder is less than 0.3µm.

Drawings / Images



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



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

M-238, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Order Information

M-238.5PG

High-load linear actuator; DC gear motor with ActiveDrive; 50 mm travel range; 400 N feed force; 30 mm/s maximum velocity; ball screw; incremental rotary encoder, 4000 counts/rev. sensor resolution; limit switches: Hall effect

M-238.5PL

High-load linear actuator; DC gear motor with ActiveDrive; 50 mm travel range; 400 N feed force; 30 mm/s maximum velocity; ball screw; incremental linear encoder, 100 nm sensor resolution; limit switches: Hall effect