

NEXACT® OEM Miniature Linear Motor / Actuator

Compact, Fast, with Long Travel Range, PiezoWalk® Principle

N-310

- Travel range 10 to 125 mm, variable runner lengths
- Compact in size, inexpensive design
- Resolution to 0.03 nm
- Push force up to 10 N



Application fields

- Industrial precision positioning
- Semiconductor technology
- Semiconductor tests
- Wafer inspection
- Lithography
- Nanoimprinting
- Nanometrology

Nanometer precision and high feed force with PiezoWalk® walking drives

In the PiezoWalk® walking drive, several piezo actuators do a walking motion that leads to a forward feed of a runner. Control of the actuators allows the smallest step and forward feed motion at a resolution of well under one nanometer.

Highly accurate position measuring with incremental linear encoder

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

Motion	Unit	Tolerance	N-310.10	N-310.11	N-310.13	N-310.14	N-310.15	N-310.16
Active axes			X	X	X	X	X	X
Travel range in X	mm		10	20	50	75	100	125
Travel range in X (analog mode)	µm	Max.	10	10	10	10	10	10
Maximum velocity in X, unloaded	mm/s		10	10	10	10	10	10

Positioning	Unit	Tolerance	N-310.10	N-310.11	N-310.13	N-310.14	N-310.15	N-310.16
Step size in full step mode	µm		10	10	10	10	10	10
Resolution in X, open loop	nm	Typ.	0.03	0.03	0.03	0.03	0.03	0.03

Drive Properties	Unit	Tolerance	N-310.10	N-310.11	N-310.13	N-310.14	N-310.15	N-310.16
Drive type			Piezo motor/Piezo walking drive/NEXACT® piezo walking drive	Piezo motor/Piezo walking drive/NEXACT® piezo walking drive	Piezo motor/Piezo walking drive/NEXACT® piezo walking drive	Piezo motor/Piezo walking drive/NEXACT® piezo walking drive	Piezo motor/Piezo walking drive/NEXACT® piezo walking drive	Piezo motor/Piezo walking drive/NEXACT® piezo walking drive
Operating voltage	V		-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45
Drive force in positive direction of motion in X	N	Max.	10	10	10	10	10	10
Drive force in negative direction of motion in X	N	Max.	10	10	10	10	10	10

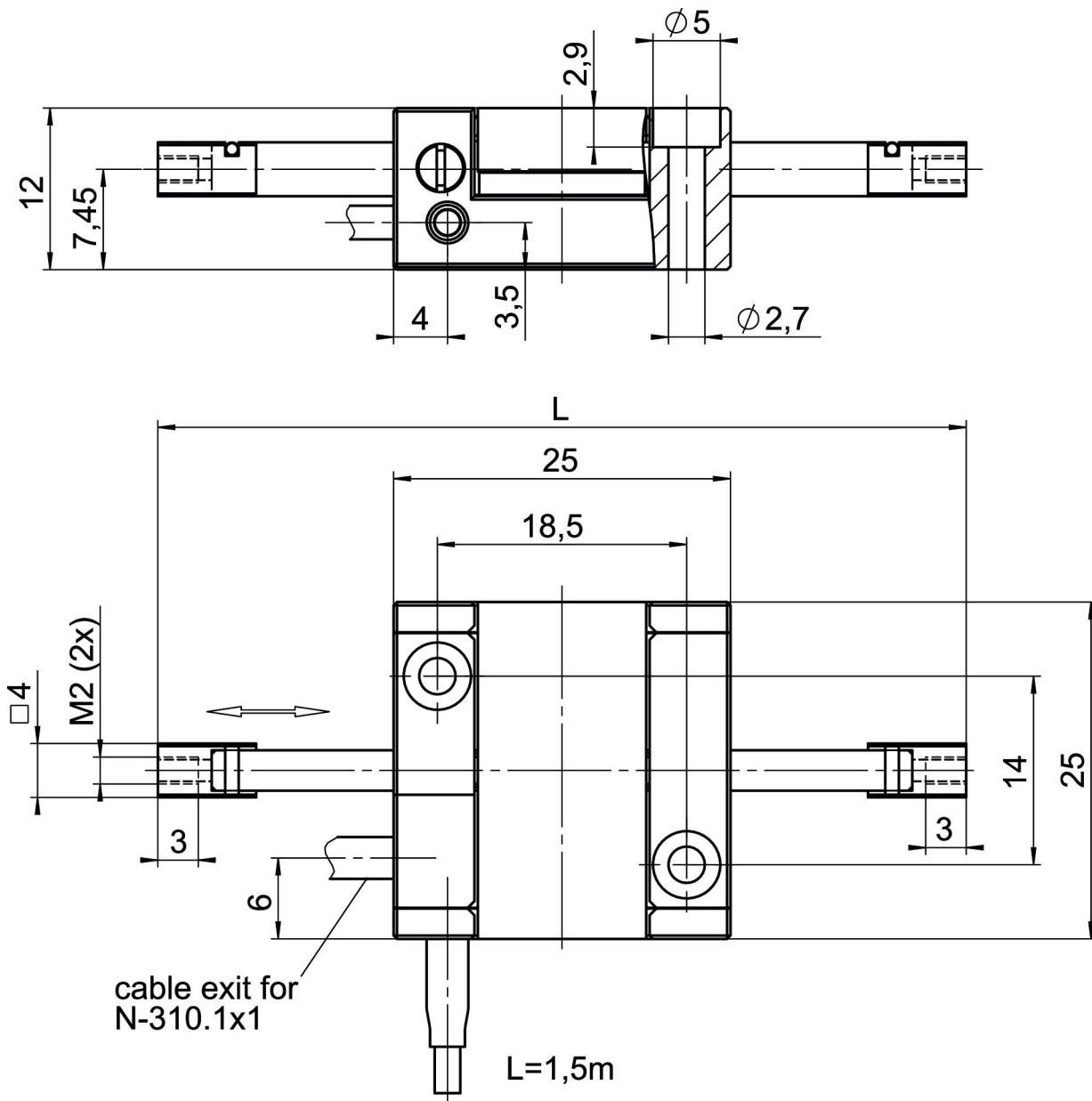
Mechanical Properties	Unit	Tolerance	N-310.10	N-310.11	N-310.13	N-310.14	N-310.15	N-310.16
Holding force in X, passive	N	Max.	12	12	12	12	12	12
Overall mass	g	±5%	50	50	50	50	50	50
Material			Stainless steel, ceramic; cable: PFA, PTFE	Stainless steel, ceramic; cable: PFA, PTFE	Stainless steel, ceramic; cable: PFA, PTFE	Stainless steel, ceramic; cable: PFA, PTFE	Stainless steel, ceramic; cable: PFA, PTFE	Stainless steel, ceramic; cable: PFA, PTFE

Miscellaneous	Unit	Tolerance	N-310.10	N-310.11	N-310.13	N-310.14	N-310.15	N-310.16
Operating temperature range	°C		0 to 50	0 to 50	0 to 50	0 to 50	0 to 50	0 to 50
Connector			HD D-sub 15-pin (m)	HD D-sub 15-pin (m)	HD D-sub 15-pin (m)	HD D-sub 15-pin (m)	HD D-sub 15-pin (m)	HD D-sub 15-pin (m)
Cable length	m	±10 mm	1.5	1.5	1.5	1.5	1.5	1.5
Recommended controllers / drivers			E-712, E-861, E-861.11C885, E-862	E-712, E-861, E-861.11C885, E-862	E-712, E-861, E-861.11C885, E-862	E-712, E-861, E-861.11C885, E-862	E-712, E-861, E-861.11C885, E-862	E-712, E-861, E-861.11C885, E-862

Maximum velocity in X, unloaded: Depending on the drive electronics.
Resolution in X, open loop: Depending on the drive electronics.

Recommended controllers / drivers:
E-712 - Modular, high performance for highest precision and velocity
E-861 - Cost effective NEXACT® controller for 1 channel
E-861.11C885 - NEXACT® controller module for modular controller system C-885
E-862 - Cost effective open-loop driver

Drawings / Images



	L
N-310.11	60
N-310.12	70
N-310.13	90
N-310.14	115
N-310.15	140
N-310.16	165

N-310, dimensions in mm. Runner length L = travel range + 40 mm.

Order Information

N-310.10

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 10 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length

N-310.11

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 20 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length

N-310.13

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 50 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length

N-310.14

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 75 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length

N-310.15

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 100 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length

N-310.16

NEXACT® OEM miniature linear motor / actuator; NEXACT® piezo walking drive; 125 mm travel range; 10 N drive force; 10 mm/s maximum velocity; 1.5 m cable length