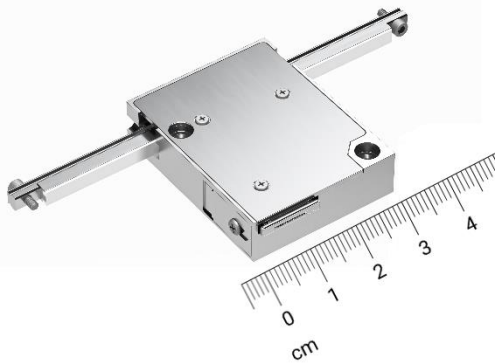


XLA-10 Series

Fast and compact linear actuator



The XLA micro linear actuators are world class in terms of weight, size and precision. The actuator is driven by the Crossfixx™ ultrasonic piezo motor, allowing an extremely compact design, variable speeds up to 200 mm/s and a total weight of less than 36 gram! The XLA-10 has an integrated encoder with a 1250, 312 or 78 nm resolution or open-loop. A wide range of rod lengths is available, allowing stroke lengths from 10 mm to 300 mm! The open-loop version also comes with an integrated controller to make the whole setup even more compact. The design of the XLA-10 allows it to be **stackable**, this way actuators can be placed very closely to each other.

Key features

	closed-loop	open-loop
drive principle	patented Crossfixx™ ultrasonic piezo technology	
lifetime	> 1000 km / typ. 20 million cycles	
operating voltage	48 V	12 V
controller	XD-OEM controller required	integrated controller

Model code structure

actuator type	rod length (mm)	encoder resolution (nm)	FPC cable outlet (flexible printed cable)
XLA-10	-55	-OPEN	top side
		-1250	
		-312	
		-78	
	-70	same as XLA-10-55	
	-85		
	-100		
	-115		
	-130		
	-145		
	-160		
	...		
	-295		
	-310		
-325			

Example: **XLA-10-45-312**

- └ XLA-10 series linear actuator
- └ Rod length of 45 mm
- └ Closed-loop actuator with integrated encoder with a resolution of 312 nm

Environmental compatibility

temperature range	-30°C to +70°C
humidity range	20% to 90% RH (non-condensing)
heat dissipation (motor only)	< 10 W
internal operation voltage	< 100 V

Motion performance

		XLA-10 all rod lengths				unit	tolerance	
		-1250	-312	-78	open-loop			
LIMITS	type					optical		
	type	optical, incremental						
ENCODER	grating period	80				no encoder + integrated controller	µm	
	resolution	1250	312	78	nm			
	index	1 per full stroke						
	accuracy	± 5					µm	typ.
	resolution = min. step size = min. incremental motion (MIM)	1250	350	80	50 – 100 µm (pulsed operation)		nm	typ.
unidirectional repeatability	± 1250	± 350	± 80	nm		typ.		
bidirectional repeatability	± 2500	± 700	± 160	nm		typ.		
ACTUATOR	speed	max. speed	200			500	mm/s	typ.
		min. speed	2 to 5			10	µm/s	typ.
		stability (at typical speed of 10 mm/s)	± 1			-	%	typ.
	point-to-point positioning time for a 1 mm step*	0g load	50			-	msec	typ.
	max. acceleration	0g load	400				m/s ²	typ.
	operation duty cycle					50 120	% sec	max.

Mechanical properties

		XLA-10										unit	tolerance	
rod length		-55	-70	-85	-100	-115	-130	-145	-160	-175	-190	-205	mm	± 0.1
dimensions	closed-loop	43 x 30 x 11.5										mm	± 0.1	
	open-loop	43 x 30 x 14.5												
stroke / travel range		15	30	45	60	75	90	105	120	135	150	165	mm	± 0.1
mass	closed-loop	54.9	56.3	57.7	59.1	60.6	62.1	63.7	65.3	66.9	68.6	70.3	g	± 5%
	open-loop	56.1	57.5	58.9	60.3	61.8	63.3	64.9	66.5	68.1	69.8	71.5		
holding force		10										N		
driving force		10										N		
actuator materials		aluminum (housing) steel rod and stainless steel housing cover												
cable type		Closed loop version: FPC, 12 core, 0.5 mm pitch with opposite side contacts Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts												

		XLA-10								unit	tolerance
rod length		-220	-235	-250	-265	-280	-295	-310	-325	mm	± 0.1
dimensions	closed-loop	43 x 30 x 11.5								mm	± 0.1
	open-loop	43 x 30 x 14.5									
stroke / travel range		180	195	210	225	240	255	270	285	mm	± 0.1
mass	closed-loop	72.0	73.8	75.7	77.6	79.5	81.5	83.5	85.6	g	± 5%
	open-loop	73.2	75	76.9	78.8	80.7	82.7	84.7	86.8		
holding force		10								N	
driving force		10								N	
actuator materials		aluminum (housing) steel rod and stainless steel housing cover									
cable type		Closed loop version: FPC, 12 core, 0.5 mm pitch with opposite side contacts Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts									

Controller/software

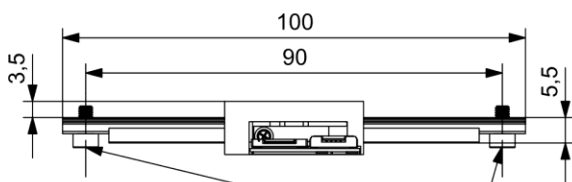
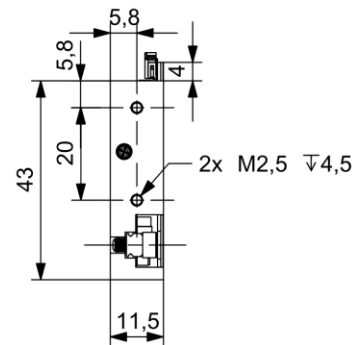
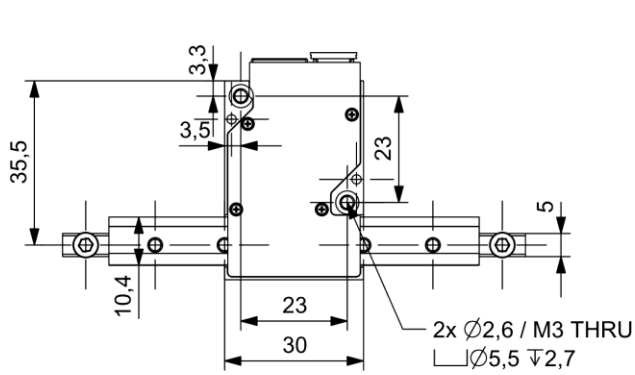
The XLA-10 **closed-loop** actuators are compatible with the **XD-OEM Controller**.

The XLA-10 **open-loop** actuators have a **built-in controller**.

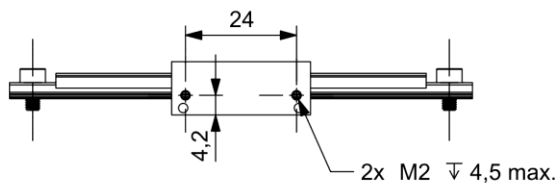
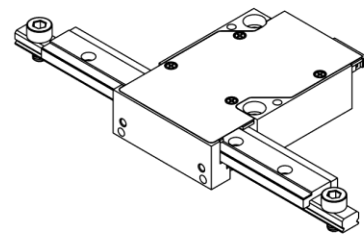
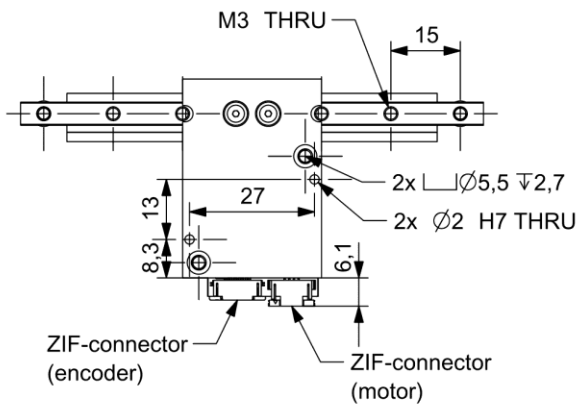
Controlling of the stage is done with:

- Easy-to-use Windows interface
- LabVIEW interface program (compiled program or source)
- MATLAB interface script
- C++ and Python libraries

Last updated: 24/11/2023. All specifications are subject to change without prior notice.



M3 bolts always required as mechanical limit!



General roughness	General tolerance	Material	Drawing number
\sqrt{f}	f		XXXX.YYY.ZZZ.A
Scale		Treatment	Project number
1:1	\sqrt{f}		XLA-10
		XLA-10-100 assembly (rev. A0)	
		Author: TW	Date: 24-11-2023 A3