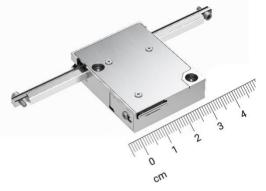


# **XLA-3 Series**

## 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 400 mm/s and a total weight of less than 36 gram! The XLA-3 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.

### **Key features**

	closed-loop	open-loop			
drive principle	patented Crossfixx™ ultrasonic piezo technology				
lifetime	> 100 km / 1 million cycles				
operating voltage	20 to 48 V	12 V			
controller	external XD-A controller required	integrated controller			

#### Model code structure

actuator type	rod length (mm)	encoder resolution (nm)	FPC cable outlet (flexible printed cable)			
	-45	-OPEN				
		-1250				
		-312				
		-78				
	-55					
	-65	same as XLA-3-40				
	-75					
XLA-3	-85		top side			
ALA-3	-105		top side			
	-125					
	-145					
	-285					
	-305					
	-325					

Example: **XLA-3-45-312** 

- XLA-3 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)	< 1 W

### **Motion performance**

				XLA-	3 all rod len	gths	unit	tolerance
			-1250	-312	-78	open-loop		
LIN	IITS	type				optical		
		type	opt	tical, increme	ntal			
띪		grating period		80		no encoder	μm	
ENCODER		resolution	1250	312	78	+	nm	
Й		index		per full strok	ке	integrated controller		
		accuracy		± 5			μm	typ.
	positioning	resolution = min. step size = min. incremental motion (MIM)	1250	350	80	50 – 100 μm	nm	typ.
	sitio	unidirectional repeatability	± 1250	± 350	± 80	(pulsed operation)	nm	typ.
TOR	ď	bidirectional repeatability	± 2500	± 700	± 160		nm	typ.
ACTUATOR		max. speed		400		1000	mm/s	typ.
AC	Þ	min. speed		2 to 5		10	μm/s	typ.
	speed	stability (at typical speed of 10 mm/s)		± 1		-	%	typ.
		point-to-point positioning time for a 0g 1 mm step* load	i	200		-	msec	typ.

### **Mechanical properties**

							XLA-3						unit	tolerance
rod length		-45	-55	-65	-75	-85	105	-125	-145	-165	-185	-205	mm	± 0.1
dimensions	closed- loop		38 x 30 x 9.1										mm	± 0.1
annonoro	open-loop	38 x 30 x 12						1111111	± 0.1					
stroke / trave	l range	10	20	30	40	50	70	90	110	130	150	170	mm	± 0.1
mass	closed- loop	35.8	36.6	37.4	38.2	40	40.8	41.6	42.4	43.2	50	50.8	g	± 5%
mass	open-loop	37.0	37.8	38.6		50.4	51.2	52	52.8	53.6	54.4	55.2		
holding force		3									N			
driving force	Iriving force 3					N								
actuator materials stee			anodized aluminum (housing) steel rod and stainless steel housing cover											
cable type  Closed loop version: FPC, 12 core, 0.5 mm pitch with same side contacts  Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts														

				XL	A-3			unit	tolerance	
rod length		-225	-245	-265	-285	-305	-325	mm	± 0.1	
dimensions	closed- loop		38 x 30 x 9.1							
amonolono	open-loop	38 x 30 x 12						— mm	± 0.1	
stroke / trave	l range	190	210	230	250	270	290	mm	± 0.1	
mass	closed- loop	51.6	52.4	53	53.8	54.6	55.4	g	± 5%	
mass	open-loop	56	56.8	57.6	58.4	59.2	60			
holding force	;	3								
driving force	riving force 3					N				
actuator mat	erials	anodized aluminum (housing) steel rod and stainless steel housing cover								
cable type  Closed loop version: FPC, 12 core, 0.5 mm pitch with same side contacts  Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts										

### **Error motion**

		XLA- length XX		XLA length X			
	resolution	-1250	-1250 -312		-78 unit -5 -1		tolerance
	straightness	±	±	±	±	μm	max.
	flatness	±	±	±	±	μm	max.
error motion	pitch					µrad arcsec	max.
error	roll					µrad arcsec	max.
	yaw					µrad arcsec	max.

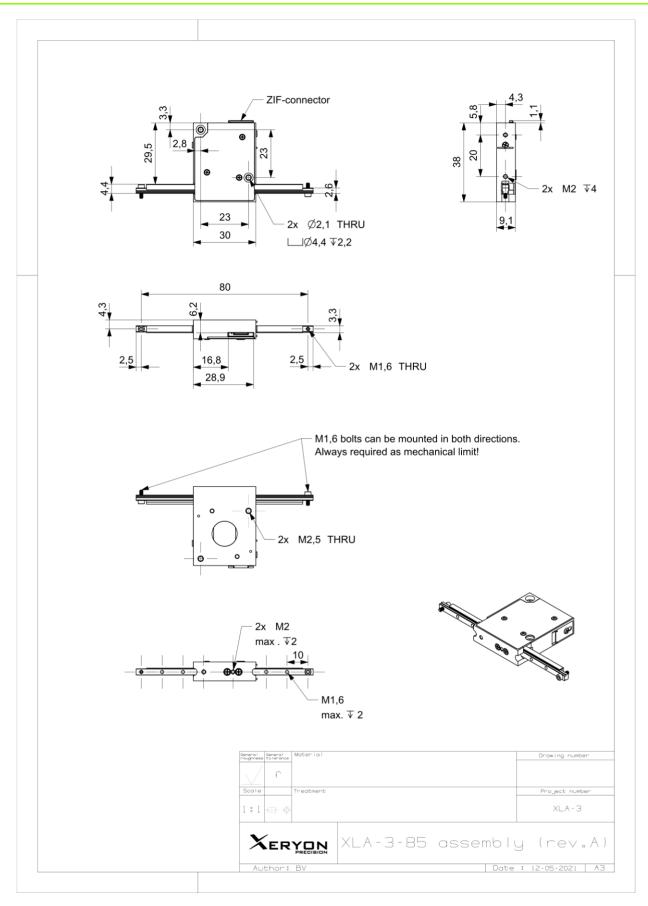
### Controller/software

The XLA-3 **closed-loop** actuators are compatible with the **XD-A Controller**.

The XLA-3 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: 24/08/2021. All specifications are subject to change without prior notice.