



# XWS series

## OEM motorized XY stage - 100 x 100 mm

The XWS is an OEM motorized XY stage driven by ultrasonic piezo motors. These stages combine high-speed positioning with submicron precision and offer precise planar motion over a 100 x 100 mm surface. Xeryon's ultrasonic piezo motor ensures you a long lifetime, noiseless and vibration-free operation. In addition, the self-locking piezo motor holds the position of the stage when powered off. The reduced heat dissipation leads to a very stable nano-positioning system. The XWS is used in both (upright) microscopy and non-microscopy applications.

### Key features

drive principle	patented Crossfixx™ ultrasonic piezo technology
bearings	precision linear recirculating roller
lifetime distance	> 1000 km / typ. 20 million cycles
control principle	closed-loop position control
stage inserts	M6 breadboard insert Xeryon stage insert (for adding additional axes) other inserts upon request

### Model code structure

stage type	encoder resolution (nm)
XWS	-1000
	-250
	-50

### Environmental compatibility

temperature range	-30°C to +70°C (transport) +10°C to +40°C (operation)
humidity range	max. 75% RH (non-condensing)
heat dissipation (motor only)	< 5 W
mounting surface flatness	< flatness specification of stage

## Motion performance

		resolution			unit	tolerance	
		-1000	-250	-50			
ENCODER	type	optical, incremental					
	grating period	20			µm		
	resolution	1000	250	50	nm		
	index	1 per full stroke					
	accuracy	± 10	± 5	± 1	µm	typ.	
STAGE	positioning	resolution = min. step size = min. incremental motion (MIM)	1	1	1	enc. count	typ.
		unidirectional repeatability	± 1	± 1	± 1	enc. count	typ.
		bidirectional repeatability	± 2	± 2	± 2	enc. count	typ.
	speed	max. speed	250			mm/s	typ.
		min. speed	5			µm/s	typ.
		stability (at typical speed of 10 mm/s)	± 1			%	typ.
		point-to-point positioning time for a 1 mm step <sup>1</sup> (without load)	300			msec	typ.
		point-to-point positioning time 10 mm 1 mm 100 µm	300 150 100	450 225 150		msec msec msec	typ.

<sup>1</sup> settling within bidirectional repeatability range

Note: a detailed description of the terms used in this datasheet can be found in the piezo selection guide on our website.

## Mechanical properties

		XWS (all models)	unit	tolerance
dimensions	length	215	mm	± 0.1
	width	215		
	height	24,9		
stroke / travel range	standard cage	100 x 100	mm	± 0.1
max. acceleration (without load)		1	m/s <sup>2</sup>	typ.
mass (w/o connector)		2,5	kg	± 5%
load capacity (payload limitation)		3	kg	max.
driving force		5	N	min.
holding force		5	N	min.
passive holding stiffness (XY)		1	N/µm	typ.
stage material	slider/base	aluminium, black anodized		
cable length		2	m	± 0.1

