



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

					unit	tolerance	
resolution		-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 ¹ (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.

¹ 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 ²	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

