

ANPx51

linear, horizontal, and compact stepper positioner

Technology			
travel mechanism	inertial piezo drive		
Size and Dimensions			
footprint; height	15 x 15; 9.2 mm		
maximum size	18 x 15; 9.2 mm		
Coarse Positioning Mode			
travel (step mode)	3 mm		
typical minimum step size	25 nm @ 300 K, 10 nm @ 4 K		
maximum speed (@ 300 K, no load)	approx. 1 mm/s		
Fine Positioning Mode			
scan range	5 µm @ 300 K, 0.8 µm @ 4 K		
scan resolution	sub-nm resolution		
Materials (non-magnetic)			
positioner body	Titanium (other materials on request)		
actuator	PZT ceramics		
connecting wires	insulated twisted pair, Cu		
weight	7 g		
Load			
maximum vertical load	25 g		
maximum static forces along the axis	1.5 N		
maximum dynamic force along the axis	1 N		
maximum torque on the axis	10 Ncm		
Mounting			
frontside mounting	two through holes for M1.6		
backside mounting	two threads M2 x 2.5 mm		
load mounting	four threads M1.6 x 2.5 mm		
Article Numbers			
/RT Version	1002223	/LT Version	1002220
/HV Version	1002219	/LT/HV Version	1002221
/UHV Version	1002224	/LT/UHV Version	1002222
Compatibility with Electronics			
ANC106 piezo step controller	/RT version only		
ANC300 piezo positioning controller	all versions		

Working Conditions	
mounting orientation	axis horizontal
magnetic field range	0 .. 31 T
temperature range (/RT, /HV, /UHV)	0 .. 100 °C
temperature range (/LT, /LT/HV, /LT/UHV)	10 mK .. 373 K
max. bake out temperature (/UHV, /LT/UHV)	150 °C
minimum pressure (/RT, /LT)	1E-4 mbar
minimum pressure (/HV, /LT/HV)	1E-8 mbar
minimum pressure (/UHV, /LT/UHV)	5E-11 mbar

Connectors and Feedthroughs	/RT, /LT Versions	all /HV, /UHV Versions
connector type	2-pole pin plug, ø 0.5 mm, d = 2 mm,	2-pole pin plug (PEEK), ø 0.5 mm, d = 2 mm,
connector type	30 cm cable with connector	30 cm cable with connector
electrical feedthrough solution	COC230/LT	COC230/HV, COC230/UHV

Temperature Dependent Data	@ 300K	@ 4K (only /LT versions)
input voltage range	0 .. +100 V	0 .. +100 V
typical actuator capacitance	1050 nF	150 nF
typical step size (min .. max)	0.025 .. 2 µm	10 .. 500 nm
fine positioning range	5 µm	0.8 µm

Accuracy of Movement	
repeatability of step sizes	typically 5 % over full range
forward / backward step asymmetry	typically 5 %

Position Encoder	
encoder options	/RES, /NUM (on request)

