

## ANPz101eXT12/RES

linear, vertical stepper positioner providing highest stability with 12 mm travel range and with resistive encoder for closed loop operation

Technology	
travel mechanism	inertial piezo drive

Size and Dimensions	
footprint; height	24 x 24; 32 mm
maximum size	24 x 24; 44 mm

Coarse Positioning Mode	
travel (step mode)	12 mm
typical minimum step size	50 nm @ 300 K, 10 nm @ 4 K
maximum speed (@ 300 K, no load)	approx. 3 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	58.8 g

Load	
maximum vertical load	200 g
maximum static forces along the axis	8 N
maximum dynamic force along the axis	5 N
maximum torque on the axis	10 Ncm

Mounting	
frontside mounting	two through holes for M2
backside mounting	two threads M2,5 x 4 mm
load mounting	six threads M2 x 3 mm

Article Numbers			
/RT Version	1005146	/LT Version	1005149
/HV Version	1005147	/LT/HV Version	1005150
/UHV Version	1005148	/LT/UHV Version	1005151

Compatibility with Electronics	
ANC350 piezo positioning controller	all versions

Working Conditions	
mounting orientation	axis vertical
magnetic field range	0 .. 31 T
temperature range (/RT, /HV, /UHV)	0 .. 100 °C
temperature range (/LT, /LT/HV, /LT/UHV)	---
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,	15-pin Sub-D
connector type	30 cm cable with connector	50 cm cable with connector
electrical feedthrough solution	VFT/LT	VFT/HV, VFT/UHV
encoder connector	additional 3-pole plug	0

Temperature Dependent Data	@ 300K	@ 4K (only /LT versions)
input voltage range	0 .. +100V	0 .. +100V
typical actuator capacitance	1550 nF	220 nF
typical step size (min .. max)	0.1 .. 3 µm	10 .. 500 nm
fine positioning range	7.5 µm	1.2 µm

Accuracy of Movement	
repeatability of step sizes	typically 5 % over full range
forward / backward step asymmetry	typically 5 - 10 % depending on load

Position Encoder	
readout mechanism	resistive encoder, potentiometric measurement
sensor power (when measuring)	< 1 mW possible
encoded travel range	full travel
sensor resolution	approx. 200 nm
repeatability	1 - 2 µm
linearity (over full travel)	1%

