

## ANPz51/RES

linear, vertical stepper positioner with resistive encoder for closed loop operation

Technology			
travel mechanism	inertial piezo drive		
Size and Dimensions			
footprint; height	15 x 18; 13.5 mm		
maximum size	15 x 18; 16 mm		
Coarse Positioning Mode			
travel (step mode)	2.5 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	13 g		
Load			
maximum vertical load	50 g		
maximum static forces along the axis	2.5 N		
maximum dynamic force along the axis	1.5 N		
maximum torque on the axis	10 Ncm		
Mounting			
frontside mounting	---		
backside mounting	two threads M2 x 4.5 mm		
load mounting	four threads M1.6 x 2 mm		
Article Numbers			
/RT Version	1003267	/LT Version	1003268
/HV Version	1003269	/LT/HV Version	1003271
/UHV Version	1003270	/LT/UHV Version	1003272
Compatibility with Electronics			
ANC350 piezo 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)	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
encoder connector	additional 3-pole plug	additional 3-pole plug (Peek)
Temperature Dependent Data		
	@ 300K	@ 4K (only /LT versions)
input voltage range	0 .. +100V	0 .. +100V
typical actuator capacitance	1050 nF	150 nF
typical step size (min .. max)	0.025 .. 2 µm	10 .. 500 nm @ 4 K
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 - 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%	

