

closed loop, linear, vertical stepper positioner with resistive encoder and extended travel range

<b>Technology</b>		<b>Compatibility with Electronics</b>	
travel mechanism	inertial piezo drive	ANC350 piezo positioning controller	ANC350/RES
<b>Size and Dimensions</b>		<b>Working Conditions</b>	
footprint; height	24 x 24; 32 mm	mounting orientation	axis vertical
maximum size	24 x 24; 44 mm	magnetic field range	0 .. 31 T
weight	58.8 g	temperature range (/LT, /LT/HV, /LT/UHV)	10 mK .. 373 K
<b>Coarse Positioning Mode</b>		max. bake out temperature (/UHV, /LT/UHV)	150 °C
	<b>@ 300 K</b>	minimum pressure (/RT, /LT)	1E-4 mbar
input voltage range	0 .. 60 V	minimum pressure (/HV, /LT/HV)	1E-8 mbar
typical actuator capacitance	1.55 µF	minimum pressure (/UHV, /LT/UHV)	5E-11 mbar
travel range (step mode)	12 mm		
typical minimum step size	50 nm		
maximum drive velocity	≈ 3 mm/s		
<b>Fine Positioning Mode</b>		<b>Position Encoder</b>	
	<b>@ 300 K</b>		<b>@ 4 K</b>
input voltage range	0 .. 100 V	readout mechanism	resistive sensor
fine positioning range	0 .. 7.5 µm	sensor power (when measuring)	1 µW .. 1 mW
fine positioning resolution	sub-nm	encoded travel range	full travel
<b>Materials (non-magnetic)</b>		sensor resolution	≈ 200 nm
positioner body	titanium (upgrade option: beryllium copper)	repeatability	1..2 µm
actuator	PZT ceramics	linearity (over full travel)	< 1%
connecting wires	insulated twisted pair, copper	absolute accuracy	typically < 1 % of travel range
<b>Load (@ ambient conditions)</b>		<b>Connectors and Feedthroughs</b>	
	<b>mounting orientation: axis vertical</b>	<b>/RT, /LT Versions</b>	<b>all /HV, /UHV Versions</b>
maximum load	2 N (200 g)	connector type	2-pole pin plug, ø 0.5 mm, d = 2 mm, 30 cm cable with connector
maximum dynamic force along the axis	5 N	encoder connector	additional 3-pole plug
		electrical feedthrough solution	VFT/LT VFT/HV, VFT/UHV
<b>Mounting</b>			
from the top	2 through holes dia 2.2 mm, cntrbr. f. M2		
from the bottom	2 threads M2.5 x 3.4 mm		
load on top	10 threads M2 x 3.3 mm		
<b>Article Numbers</b>			
/RT Version	1005146		
/HV Version	1005147		
/UHV Version	1005148		
/LT Version	1005149		
/LT/HV Version	1005150		
/LT/UHV Version	1005151		

Technical drawings of the 3D printer enclosure:

- top view:** Shows the top surface with dimensions: 24 (width), 24 (height), 11 (inner width), 20 (inner height), 5 X 45° (corner chamfer), and 10 x M2  $\varnothing$  3.3 (hole pattern).
- bottom view:** Shows the bottom surface with dimensions: 20 (width), 6.5 (height), and 2x M2.5  $\varnothing$  3.4 (hole pattern).
- 3D view:** Isometric view of the enclosure showing the top, front, and side panels.