ANPz101/RES

closed loop, linear, vertical stepper positioner with resistive encoder

Technical Specifications

Technology	
travel mechanism	inertial piezo drive

Size and Dimensions	
footprint; height	24 x 24; 20 mm
maximum size	24 x 24; 25 mm
weight	38 g

Coarse Positioning Mode	@ 300 K	@ 4 K
input voltage range	0 .. 60 V	0 .. 60 V
typical actuator capacitance	1.106µF	0.15 µF
travel range (step mode)	5 mm	5 mm
typical minimum step size	50 nm	10 nm
maximum drive velocity	≈ 3 mm/s	

Fine Positioning Mode	@ 300 K	@ 4 K
input voltage range	0 .. 100 V	0 .. 150 V
fine positiong range	0 .. 5 µm	0 .. 0.8 µm
fine positioning resolution	sub-nm	sub-nm

Materials (non-magnetic)	
positioner body	titanium (upgrade option: copper beryllium)
actuator	PZT ceramics
connecting wires	insulated twisted pair, copper

Load (@ ambient conditions)	mounting orientation: axis vertical
maximum load	2 N (200 g)
maximum dynamic force along the axis	5 N

Mounting	
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

Article Numbers	
/RT version	1002813
/HV version	1002814
/UHV version	1002815
/LT version	1002816
/LT/HV version	1002817
/LT/UHV version	1002818

Compatibility with Electronics	
ANC350 piezo positioning controller	ANC350/RES

Working Conditions	
mounting orientation	axis vertical
magnetic field range	0 .. 31 T
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

Position Encoder	
readout mechanism	resistive sensor
sensor power (when measuring)	1 µW .. 1 mW
encoded travel range	full travel
sensor resolution	≈ 200 nm
repeatability	1..2 µm
linearity (over full travel)	< 1%
absolute accuracy	typically < 1 % of travel range

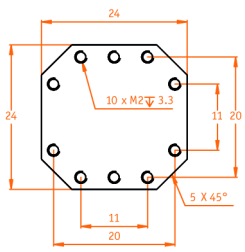
Connectors and Feedthroughs	/RT, /LT Versions	all /HV, /UHV Versions
connector type	2-pole pin plug, ø 0.5 mm, d = 2 mm, 30 cm cable with connector	2-pole pin plug (PEEK), ø 0.5 mm, d = 2 mm, 30 cm cable with connector
encoder connector	additional 3-pole plug	additional 3-pole plug (PEEK)
electrical feedthrough solution	---	VFT/HV, VFT/UHV

High Load Option (/HL)	
/HL/RT - ambient conditions	7 N
/HL/UHV - UHV conditions	5 N
/HL/LT - cryogenic temperature conditions	3 N

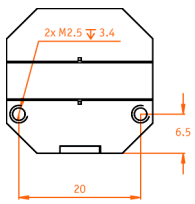
Article Numbers /HL Option	
/HL/RT version	1009665
/HL/HV version	1009666
/HL/UHV version	1009667
/HL/LT version	1009668
/HL/LT/HV version	1009669
/HL/LT/UHV version	1009670

Technical Drawings

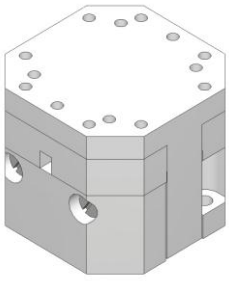
top view



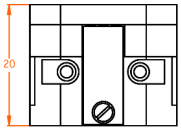
bottom view



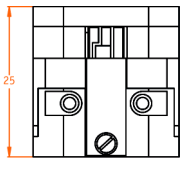
3D view



inner position



outer position



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