

attoMOTION Piezo-based Nano Drives

Technical Specifications

Technology	
travel mechanism	inertial piezo drive
positioner type	linear
Size and Dimensions	
footprint; height	44x41.6; 11.5mm
max installation space	49.1x44; 11.5mm
weight	80 g
Materials	
positioner body	titanium
actuator	PZT ceramics
connecting wires	insulated twisted pair, copper
bearings	ceramics
Options	
environmental options	/HV, /LT, /LT/HV, /LT/UHV, /RT, /UHV
Compatibility with Electronics	
ANC350 piezo positioning controller	ANC350/RES
Load (@ ambient conditions)	
maximum torque on the axis	10 Ncm
maximum load	20 N
maximum dynamic force along the axis	2 N
Coarse Positioning Mode	
input voltage range	0 - 60 V
typical actuator capacitance @ 300 K	1.6 μF
typical actuator capacitance @ 4 K	0.22 μF
travel range (step mode)	15 mm
typical minimum step size @ 300 K	100 nm
typical minimum step size @ 4 K	20 nm
maximum drive velocity @ 300 K	approx. 3 mm/s
Fine Positioning Mode	
fine positioning range @ 300 K	7.5 µm
fine positioning range @ 4 K	1.2 µm
fine positioning resolution	sub-nm
input DC voltage range @ 300 K	0 - 100 V
input DC voltage range @ 4 K	0 - 150 V
Accuracy of Movement	
repeatability of step sizes	typically 5 % over full range
forward / backward step asymmetry	typically 5 %

readout mechanism resistive sensor sensor power (when measuring) 0.01 - 1 mW sensor resolution approx. 200 nm repeatability 12 µm linearity (over full travel) <1 % Mounting no. of through holes at the top 4 diameter of through holes at the top M2 no. of threads at the bottom 4 type of screw at the top M2 no. of threads for load on top 10 type of screw for load on top 10 type of screw for load on top M2 x 3 mm Working Conditions mounting orientation axis horizontal magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/HV) 5E-11 mbar temperature range (/RT) 273 K 373 K temperature range (/RT) 10 mK 373 K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions // It version 1006350 // It/ Wersion 1006355 // It/ Wersion 1006354 // It/ It/ Wersion 1008334 // It/ It/ Wersion 1008334 // It/ It version 1008342 // It/ It/ It version 1008342 // It/ It/ It/ Urt version 1008341 // It/ It/ It/ Urt version 1008335	Position Encoder	
sensor resolution approx. 200 nm repeatability 12 µm linearity (over full travel) <1% Mounting no. of through holes at the top 4 diameter of through holes at the top 2.2 mm type of screw at the bottom 4 type of screw at the bottom M2.5 × 2 mm no. of threads for load on top 10 type of screw for load on top M2 × 3 mm Working Conditions mounting orientation axis horizontal magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/UHV) 5E-11 mbar temperature range (/LT) 273 K 373 K temperature range (/LT) 10m K 373 K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /LT version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1008342 /HL/HV version 1008342 /HL/LT version 1008342	readout mechanism	resistive sensor
repeatability 12 µm linearity (over full travel) <1% Mounting no. of through holes at the top 4 diameter of through holes at the top 2.2 mm type of screw at the top M2 no. of threads at the bottom 4 type of screw at the bottom M2.5 x 2 mm no. of threads for load on top 10 type of screw for load on top M2 x 3 mm Working Conditions mounting orientation axis horizontal magnetic field range 0-31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/HV) 5E-11 mbar temperature range (/LT) 273 K 373 K temperature range (/LT) 10m K 373 K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006351 /LT version 1006352 /LT version 1006353 /LT/HV version 1006355 /LT/UHV version 1008344 /HL/HT version 1008340 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT/HV version 1008342 /HL/LT/HV version 1008342 /HL/LT/HV version 1008341	sensor power (when measuring)	0.01 - 1 mW
linearity (over full travel) Mounting no. of through holes at the top diameter of through holes at the top type of screw at the top M2 no. of threads at the bottom dye of screw at the bottom no. of threads for load on top type of screw for load on top type of screw for load on top M2 x 3 mm Morking Conditions mounting orientation magnetic field range noinimum pressure (/RT) minimum pressure (/HV) minimum pressure (/HV) temperature range (/LT) temperature range (/LT) Connectors and Feedthroughs cable electrical feedthrough solution electrical feedthrough solution versions /RT version 1006352 /LT version 1006353 /LT/HV version 1008344 /HL/HV version 1008342 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT/HV version 1008342 /HL/LT/HV version 1008342	sensor resolution	approx. 200 nm
Mounting no. of through holes at the top diameter of through holes at the top type of screw at the top no. of threads at the bottom 4 type of screw at the bottom Active of screw at the bottom no. of threads for load on top type of screw for load on top type of screw for load on top Morking Conditions mounting orientation magnetic field range noinimum pressure (/RT) minimum pressure (/HV) minimum pressure (/HV) feen many temperature range (/RT) connectors and Feedthroughs cable electrical feedthrough solution electrical feedthrough solution VFT/LT encoder connector versions /RT version 1006350 /HV version 1006353 /LT/HV version 1006354 /LT/HV version 1006354 /HL/RT version 1008334 /HL/RT version 1008340 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LLT version 1008342 /HL/LT version 1008341	repeatability	12 µm
no. of through holes at the top diameter of through holes at the top type of screw at the top no. of threads at the bottom 4 type of screw at the bottom N2.5 x 2 mm no. of threads for load on top type of screw for load on top type of screw for load on top M2 x 3 mm Working Conditions mounting orientation magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/HV) 5E-11 mbar temperature range (/RT) 273K 373K temperature range (/LT) 10mk 373K Connectors and Feedthroughs cable alo cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1008334 /HL/RT version 1008334 /HL/RT version 1008340 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT version 1008341	linearity (over full travel)	<1%
diameter of through holes at the top type of screw at the top N2 no. of threads at the bottom At type of screw at the bottom N2.5 x 2 mm N2.5 x 2 mm N3.6 x 3 mm N4.5 x 2 mm N5.6 x 3 mm N	Mounting	
type of screw at the top M2 no. of threads at the bottom 4 type of screw at the bottom M2.5 x 2 mm no. of threads for load on top 10 type of screw for load on top M2 x 3 mm Working Conditions mounting orientation axis horizontal magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/HV) 5E-11 mbar temperature range (/RT) 273 K 373 K temperature range (/RT) 10m K 373 K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006352 /LT version 1006353 /LT/HV version 1006355 /LT/HV version 1008334 /HL/HV version 1008332 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT version 1008341	no. of through holes at the top	4
type of screw at the bottom M2.5 x 2 mm no. of threads for load on top 10 type of screw for load on top M2 x 3 mm Working Conditions mounting orientation axis horizontal magnetic field range 0-31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/UHV) 5E-11 mbar temperature range (/RT) 273K 373K temperature range (/LT) 10mK 373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006353 /LT/HV version 1006354 /LT/UHV version 1008334 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT version 1008342 /HL/LT version 1008341	diameter of through holes at the top	2.2 mm
type of screw at the bottom no. of threads for load on top type of screw for load on top Working Conditions mounting orientation magnetic field range minimum pressure (/RT) minimum pressure (/HV) minimum pressure (/HV) minimum pressure (/HV) minimum pressure (/HV) temperature range (/LT) Connectors and Feedthroughs cable electrical feedthrough solution electrical feedthrough solution VFT/LT encoder connector dditional 3-pole plug Versions /RT version 1006350 /HV version 1006353 /LT/HV version 1006354 /LT/UHV version 1008334 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT version 1008341	type of screw at the top	M2
no. of threads for load on top type of screw for load on top Working Conditions mounting orientation magnetic field range minimum pressure (/RT) minimum pressure (/HV) minimum pressure (/HV) minimum pressure (/HV) fenamar temperature range (/RT) connectors and Feedthroughs cable electrical feedthrough solution versions /RT version /HV version /LT version 1006350 /LT/HV version 1006353 /LT/HV version 1006355 /LL/HV version 1008332 /HL/HV version 1008340 /HL/HV version 1008342 /HL/LT version 1008341	no. of threads at the bottom	4
type of screw for load on top Working Conditions mounting orientation magnetic field range minimum pressure (/RT) minimum pressure (/HV) fernama temperature range (/RT) connectors and Feedthroughs cable alo cm cable with connector electrical feedthrough solution VFT/LT encoder connector versions /RT version 1006350 /HV version 1006351 /UHV version 1006353 /LT/HV version 1006354 /LT/UHV version 1006355 /HL/RT version 1008334 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	type of screw at the bottom	M2.5 x 2 mm
Working Conditions mounting orientation axis horizontal magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/UHV) 5E-11 mbar temperature range (/RT) 273K 373K temperature range (/LT) 10mK 373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006354 /LT/HV version 1006355 /HL/NT version 1008334 /HL/UHV version 1008332 /HL/UHV version 1008340 /HL/UHV version 1008342 /HL/UHV version 1008342 /HL/LT version 1008341	no. of threads for load on top	10
mounting orientation axis horizontal magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/UHV) 5E-11 mbar temperature range (/RT) 273K 373K temperature range (/LT) 10mK 373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006354 /LT/HV version 1006355 /HL/NT version 1008334 /HL/HV version 1008334 /HL/HV version 1008342 /HL/UHV version 1008342 /HL/LT version 1008341	type of screw for load on top	M2 x 3 mm
magnetic field range 0 - 31 T minimum pressure (/RT) 1E-4 mbar minimum pressure (/HV) 1E-8 mbar minimum pressure (/HV) 5E-11 mbar temperature range (/RT) 273K373K temperature range (/LT) 10mK373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006355 /LT/HV version 1006355 /HL/RT version 1008334 /HL/HV version 1008340 /HL/HV version 1008342 /HL/LT version 1008342 /HL/LT version 1008341	Working Conditions	
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minimum pressure (/HV) IE-8 mbar minimum pressure (/UHV) temperature range (/RT) temperature range (/LT) Connectors and Feedthroughs cable alo cm cable with connector electrical feedthrough solution vFT/LT encoder connector additional 3-pole plug versions /RT version /HV version 1006350 /LT version 1006352 /LT version 1006353 /LT/HV version 1006355 /LT/HV version 1006355 /HL/RT version 1008334 /HL/HV version 1008340 /HL/UHV version 1008342 /HL/LT version 1008341	magnetic field range	0 - 31 T
minimum pressure (/UHV) 5E-11 mbar temperature range (/RT) 273K 373K temperature range (/LT) 10mK 373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1006355 /HL/RT version 1008334 /HL/HV version 1008334 /HL/HV version 1008340 /HL/UHV version 1008342 /HL/LT version 1008341	minimum pressure (/RT)	1E-4 mbar
temperature range (/RT) 273K 373K temperature range (/LT) 10mK 373K Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1006355 /HL/RT version 1008344 /HL/HV version 1008340 /HL/HV version 1008342 /HL/LT version 1008341	minimum pressure (/HV)	1E-8 mbar
temperature range (/LT) 10mK 373K Connectors and Feedthroughs 30 cm cable with connector cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/UHV version 1006354 /LT/UHV version 1008334 /HL/HZ version 1008332 /HL/UHV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	minimum pressure (/UHV)	5E-11 mbar
Connectors and Feedthroughs cable 30 cm cable with connector electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1008355 /HL/RT version 1008334 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	temperature range (/RT)	273K 373K
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electrical feedthrough solution VFT/LT encoder connector additional 3-pole plug Versions 1006350 /RT version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1008355 /HL/RT version 1008334 /HL/HV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	Connectors and Feedthroughs	
encoder connector additional 3-pole plug Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1006355 /HL/RT version 1008334 /HL/HV version 1008332 /HL/UHV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	cable	30 cm cable with connector
Versions /RT version 1006350 /HV version 1006351 /UHV version 1006352 /LT version 1006353 /LT/HV version 1006354 /LT/UHV version 1006355 /HL/RT version 1008334 /HL/HV version 1008332 /HL/UHV version 1008340 /HL/LT version 1008342 /HL/LT/HV version 1008341	electrical feedthrough solution	VFT/LT
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Technical Drawings







