

ANPz30

the smallest stepper positioner for linear, vertical motion

| Technology | | | |
|--------------------------------------|---|-----------------|---------|
| travel mechanism | inertial piezo drive | | |
| Size and Dimensions | | | |
| footprint; height | ø 11; 12 mm | | |
| maximum size | ø 11; 14.5 mm | | |
| Coarse Positioning Mode | | | |
| travel (step mode) | 2.5 mm | | |
| typical minimum step size | 25 nm @ 300 K, 5 nm @ 4 K | | |
| maximum speed (@ 300 K, no load) | approx. 1 mm/s | | |
| Fine Positioning Mode | | | |
| scan range | 0 .. 5 µm @ 300 K, 0 .. 0,8 µm @ 4 K | | |
| scan resolution | sub-nm resolution | | |
| Materials (non-magnetic) | | | |
| positioner body | Beryllium copper and titanium (other materials on request) | | |
| actuator | PZT ceramics | | |
| connecting wires | insulated twisted pair, Cu | | |
| weight | 3.8 g | | |
| Load | | | |
| maximum vertical load | 10 g | | |
| maximum static forces along the axis | 0.3 N | | |
| maximum dynamic force along the axis | 0.2 N | | |
| maximum torque on the axis | 1 Ncm | | |
| Mounting | | | |
| frontside mounting | --- | | |
| backside mounting | two screws M2 x 1 mm | | |
| load mounting | two threads M1.6 x 1 mm | | |
| Article Numbers | | | |
| /RT Version | 1000028 | /LT Version | 1000006 |
| /HV Version | 1000046 | /LT/HV Version | 1000406 |
| /UHV Version | 1000013 | /LT/UHV Version | 1000019 |
| Compatibility with Electronics | | | |
| ANC106 piezo step controller | /RT version only | | |
| ANC300 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) | 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 |
| Temperature Dependent Data | | |
| | @ 300K | @ 4K (only /LT versions) |
| input voltage range | 0 .. +100 V | 0 .. +100 V |
| typical actuator capacitance | 1050 nF | 150 nF |
| typical step size (min .. max) | 0.025.. 1 µm | 5 .. 250 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 | | |
| encoder options | --- | |

