

# ECSxy5050/NUM(+)

nanoprecise closed loop stepper positioner for linear, horizontal motion with optoelectronic sensor

## Technical Specifications

### Technology

travel mechanism inertial piezo drive

### Size and Dimensions

footprint; height 50 x 50; 16.4 mm  
maximum size 62.5 x 62.5; 16.4 mm  
weight 111 g

### Coarse Positioning Mode

input voltage range 0 .. 100 V  
typical actuator capacitance 0.6  $\mu$ F @ 300K  
travel range (step mode) 25 x 25 mm<sup>2</sup>  
typical minimum step size 0.05  $\mu$ m  
maximum drive velocity (@ 45 V) 4.5 mm/s

### Fine Positioning Mode

input voltage range 0 .. 60 V  
fine positioning range 0 .. 1.6  $\mu$ m  
fine positioning resolution sub-nm

### Materials

positioner body (/RT) aluminum  
actuator PZT ceramics  
connecting wires insulated twisted pair, copper  
bearings stainless steel

### Load (@ ambient conditions)

maximum load 150 N (15 kg)  
maximum dynamic force along the axis 2 N

### Mounting

from the top 4 through holes dia 2.2 mm, cntrbr. f. M2  
from the bottom 4 threads for M2.5 x 2 mm  
load on top 12 threads M2 x 2.3 mm  
load at the front L-bracket

### Compatibility with Electronics

ECC100 piezo positioning controller all versions

### Working Conditions

mounting orientation arbitrary  
temperature range (/RT, /HV, /UHV) 0 .. 100 °C  
minimum pressure (/RT) 1E-4 mbar

### Accuracy of Movement

yaw angle (over 10 mm travel) < 0.1 mrad  
pitch angle (over 10 mm travel) < 0.1 mrad  
roll angle (over 10 mm travel) < 0.1 mrad

### Position Encoder

readout mechanism optoelectronic: /NUM & /NUM+/(U)HV  
sensor power (when measuring) /NUM: 300 mW & /NUM+/(U)HV: 50 mW  
encoded travel range entire travel  
wavelength of illumination 870 nm  
sensor resolution 1 nm  
repeatability 50 nm  
absolute accuracy < 0.01% of travel range

### Connectors and Feedthroughs

connector type two 14-pole connectors  
electrical feedthrough solution 50 cm cable with connector  
---

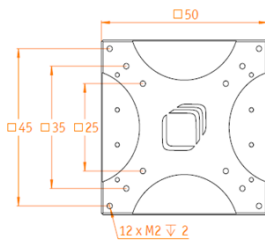
### /RT Versions

### Article Numbers

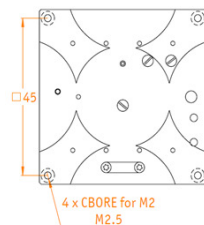
/RT version aluminum 1011873

## Technical Drawings

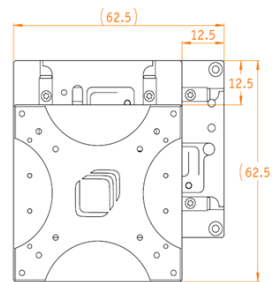
top view



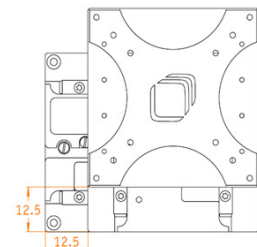
bottom view



inner position



outer position



side view

