

# EVO-10S

## Compact single-axis positioning and rate table

EVO-10S is a compact, single-axis positioning and rate table which features all required performance parameters for test and calibration of MEMS or FOG-based inertial navigation systems, accelerometers or optronic payloads.



### BENEFITS

- Best price/performance ratio on the market
- Compact size
- Horizontal or vertical use
- Best-in-class rate stability
- Unrivaled dynamic performance
- Maintenance free
- Lowest cost of ownership

### FEATURES

- Direct drive brushless electric motors
- High accuracy optical encoders
- Compatible with climatic chamber operations
- Full tabletop surface available for payloads mounting (no connectors restriction)

### CONTROLLER FEATURES

Exail nGine controller including:

- Auto-tuning of controller parameters
- Adaptive sine
- Auto-tuned anti-cogging
- Real-time built-in-test
- Real time interface options
- Advanced unbalance and fault detection

Exail ProaXe Graphical User Interface (GUI)

### TRACK RECORD

Exail has been providing position/rate tables and motion simulators for more than 60 years, including more than 20 years with the combination of direct drive brushless electric motors and optical encoders. This unique experience allows exail to build the most accurate, stable and dynamic systems, fulfilling all the needs for testing of inertial and optronic payloads.

### ADVANCED PERFORMANCES

EVO-10S is designed with key components chosen for having the best quality. Brushless motors, optical encoders and slip-ring capsules are critical to the performance of the complete system. Every EVO-10S comes with Exail nGine controller and ProaXe Graphical User Interface, which are the most advanced control electronics in terms of performance, efficiency and safety.

### A SCALABLE TEST-TABLE

EVO-10S can evolve with your process. The compact, single-axis test-table may be used in vertical operation as a rate table or in horizontal operation to measure gravity ( $\pm 1g$ ). The integration through a thermal chamber wall is optional.

## TECHNICAL SPECIFICATIONS

### Payload definition

|                      |    |   |
|----------------------|----|---|
| Nominal payload mass | kg | 10 in vertical operation<br>5 in horizontal operation |
| Maximum payload mass | kg | 20 in vertical operation                              |
| Tabletop diameter *  | mm | 250   |

### Dynamic specifications

|                             |                    |              |
|-----------------------------|--------------------|--------------|
| Angular freedom             | deg/s              | $\infty$     |
| Maximum rate                | deg/s              | $\pm 3,000$  |
| Peak acceleration           | deg/s <sup>2</sup> | $\pm 40,000$ |
| Rate accuracy over 360 deg  | %                  | < 0.001      |
| Rate stability over 360 deg | %                  | < 0.001      |
| Bandwidth (-3dB/-90 deg)    | Hz                 | > 150        |

### Geometrical specifications

|                          |        |              |
|--------------------------|--------|--------------|
| Position accuracy *      | arcsec | < $\pm 5$    |
| Position repeatability * | arcsec | $\leq \pm 2$ |
| Maximum wobble *         | arcsec | < 5          |

### Slip-ring | ROTARY JOINT

|             |                        |
|-------------|------------------------|
| Lines *     | 50 lines - 2A - 210VDC |
| Data type * | Ethernet, RS232, RS422 |

### Thermal chamber | OPTIONAL

|                 |        |   |
|-----------------|--------|---|
| Cooling options |        | Air cooled cascade mechanical refrigeration |
| Range           | °C     | -70 to +125                                 |
| Stability       | °C     | < $\pm 1$                                   |
| Gradient        | °C/min | -3 for cooling<br>+4 for heating            |
| Homogeneity     | °C     | < $\pm 1$                                   |

\* Subject to custom specification/configuration

## TECHNICAL SPECIFICATIONS

### nGine controller features

|                          |  |
|--------------------------|--|
| Main features            | Auto-tuning of controller parameters, adaptive sine bandwidth, auto tuned anti-cogging, real-time built-in-test, trajectory-file, advanced unbalance and fault detection |
| Remote interfaces        | Standard: RS-232 and Ethernet<br>Optional: USB, IEEE-488.2 (GPIB), SCRAMNet or VMIC  |
| Analog inputs/outputs    | Scalable analog inputs and outputs for position and rate<br>Digital inputs for control and trigger<br>Digital outputs, event pulse generation                            |
| Graphical User Interface | ProaXe GUI software supplied for user computer   |
| Options                  | Pedestal (to bring the TT to a convenient working height)<br>Safety enclosure. Compliant with Machinery Directives (CE)  |

### Physical characteristics



EVO-10S

395 x 270 x 330 mm-height

25 kg



Thermal chamber (optional)

805 x 955 x 1870 mm-height

240 kg

### Power and control characteristics



Desktop

360 x 430 x 130 mm-height

6 kg



4U - 19"

485 x 625 x 180 mm-height

14 kg