

EVO-10 Series

Single-axis rate positioning and rate tables

EVO-10 Series offers a full product range of single-axis positioning and rate table which features and all required performance parameters for test and calibration of MEMS or FOG-based inertial navigation systems or optronic payloads. The addition of the thermal chamber enables users to calibrate the sensors over the full operational environment.



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
- Custom slip-ring options
- Climatic chamber option with mechanical refrigeration, CO₂ or LN₂

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-10 Series is designed with key components chosen for having the best quality. Brushless motors, optical encoders and slip-ring are critical to the performance of the complete system. Every EVO-10 Series 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-10 Series can evolve with your process. The single-axis motion simulator may be used in vertical operation as a rate table or horizontal operation to measure gravity ($\pm 1g$). EVO-10M and EVO-10L can evolve to three axis motion simulator using two-axis motion simulator EVO-AMI or EVO-AMI-XL. The integration through a thermal chamber wall is optional.

TECHNICAL SPECIFICATIONS

Payload definition

		EVO-10S	EVO-10N	EVO-10M	EVO-10L
Nominal payload mass	kg	5	10	30	50
Maximum payload mass	kg	20	40	70	100
Maximum tabletop TT Ø with TC	mm	250	350	450	600
Maximum tabletop TT Ø without TC	mm	350	450	600	800

Several options and configurations are available, please contact Exail for more details

Note : All above specifications are subject to change or custom requirements

Dynamic specifications

		EVO-10S	EVO-10N	EVO-10M	EVO-10L
Angular freedom *	deg	∞	∞	∞	∞
Maximum rate **	deg/s	±3,000	±3,000	±3,000	±3,000
Rate accuracy over 360° **	%	< 0.001	< 0.0005	< 0.0001	< 0.0001
Rate stability over 360° **	%	< 0.001	< 0.0001	< 0.0001	< 0.0001
Peak acceleration **	deg/s ²	±40,000	> ±2,000	> ±2,000	> ±20,000
Bandwidth (-3dB/-90deg) **	Hz	> 150	> 100	> 100	> 200

Geometrical specifications

		EVO-10S	EVO-10N	EVO-10M	EVO-10L
Position accuracy **	arcsec	< ±5	< ±5	< ±2	< ±1
Position repeatability **	arcsec	≤ ±2	≤ ±2	≤ ±1	≤ ±1
Maximum wobble **	arcsec	≤ 5	≤ 3	≤ 3	≤ 2

Slip-ring | ROTARY JOINT

Lines	50 lines - 2A - 210VDC
Power **	5A 400VAC, 20A 400VAC
Data type **	Ethernet, RS232, RS422, 1553
RF lines **	GNSS
Gas lines **	Nitrogen, Inert gases, air etc.
Rotary joint **	Fiber optics

Thermal chamber | OPTIONAL

Cooling options	Air or water cooled cascade mechanical refrigeration, CO ₂ , LN ₂
Range	°C -70 to +125
Stability	°C < ±1
Gradient	°C/min > -4 for cooling > +5 for heating
Homogeneity	°C < ±1.5

* Unlimited and limited motion available

** Subject to custom specification/configuration

Note : All above specifications are subject to change or custom requirements

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: USB, RS-232 and Ethernet Optional: IEEE-488.2 (GPIB), SCRAMNet or VMIC
Analog inputs/outputs	Scalable analog inputs and outputs for position and rate Digital inputs for control and trigger Digital outputs, event pulse generation
Graphical User Interface	ProaXe GUI software supplied for user PC
Options	Pedestal (to bring the TT to an ergonomic working height) Safety enclosure. Compliant with Machinery Directives (CE)

Physical characteristics



EVO-10S

395 x 270 x 330 mm-height

35 kg



EVO-10N

Ø 350 x 380 mm-height

65 kg



EVO-10M

505 x 485 x 450 mm-height

100 kg



EVO-10L

Ø 700 x 730 mm-height

165 kg



Thermal chamber EVO-10S / EVO-10N (optional)

805 x 955 x 1870 mm-height

240 kg



Thermal chamber EVO-10M / EVO-10L (optional)

1235 x 1945 x 2110 mm-height

650 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



36U - 19" Cabinet

840 x 600 x 2015 mm-height

250 kg