

# EVO-30 Series

## Three-axis rate positioning and rate tables

EVO-30 Series offer a full product range of three-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
- 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
- Custom sliping options
- Climatic chamber option with CO<sub>2</sub> or LN<sub>2</sub>

### 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
- Axis cross-coupling compensation

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-30 Series are 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-30 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-30 Series can evolve with your process. The three-axis motion simulators may be used for development, production, calibration and verification.

## TECHNICAL SPECIFICATIONS

### Payload definition

		EVO-30N	EVO-30L
Nominal payload mass	kg	10	50
Maximum payload mass	kg	40	100
Maximum tabletop TT Ø with TC	mm	300	660
Maximum tabletop TT Ø without TC	mm	450	800
Maximum payload dimensions	mm	Ø450 x 360	Ø660 x 550 Ø800 x 650

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

		Inner	Middle	Outer	Inner	Middle	Outer
Angular freedom *	deg	∞	∞	∞	∞	∞	∞
Maximum rate **	deg/s	±3,000	±500	±300	±1,500	±1,000	±400
Rate accuracy over 360° **	%	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0001	< 0.0001
Rate stability over 360° **	%	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0001	< 0.0001
Peak acceleration **	deg/s <sup>2</sup>	±5,000	> ±500	> ±200	> ±4,000	> ±2,000	> ±500
Bandwidth (-3dB/-90deg) **	Hz	> 60	> 20	> 20	> 100	> 30	> 20

### Geometrical specifications

		Inner	Middle	Outer	Inner	Middle	Outer
Position accuracy **	arcsec	< ±2	< ±2	< ±2	< ±2	< ±2	< ±2
Position repeatability **	arcsec	< ±1	< ±1	< ±1	< ±1	< ±1	< ±1
Maximum wobble **	arcsec	≤ 2	≤ 3	≤ 2	≤ 2	≤ 5	≤ 2
Orthogonality **	arcsec	< 2	< 2		< 3	< 3	

### Slip-ring | ROTARY JOINT

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

### Thermal chamber | OPTIONAL

Cooling options	CO <sub>2</sub> , LN <sub>2</sub>
Range	°C -70 to >+125
Stability	°C < ±1
Gradient	°C/min > -5 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

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## TECHNICAL SPECIFICATIONS

### nGene 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

### Physical characteristics



EVO-30N

1145 x 725 x 1470 mm-height

550 kg



EVO-30L

2929 x 1500 x 2980 mm-height

6,000 kg

### Power and control characteristics



4U - 19"

485 x 625 x 180 mm-height

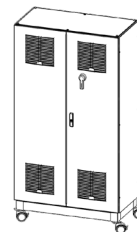
14 kg



36U - 19" Control Cabinet

485 x 625 x 180 mm-height

14 kg



36U - Power Cabinet

840 x 600 x 2015 mm-height

250 kg