Evo-20 Series
High performance customizable product range for all two-axis

Motion simulators are a strategic element in the design of a successful sensor, whether to ensure that a development roadmap is going according to plan or that a fielded sensor is still up to specifications.

Today, iXblue is a recognized provider of inertial navigation systems and one can find its sensors in the deepest ocean as well as far away in space. Evo Series is the payoff of this need for practical and more than performant motion simulators leading to the design of several cutting-edge technologies and smart functionalities.

Sharing the same electro-mechanical base, Evo-20s are co-designed by iXblue’s team and the final user to ensure that his needs are met in the most effective fashion.

Every Evo-20 includes the patented iXblue’s Ngine controller and iXblue’s ProAxe graphical user interface (GUI). These smart innovations help reducing integration time and non-recurring costs.

FEATURES

- Direct drive brushless electric motors
- High accuracy optical encoders
- iXblue Ngine controller including:
  - Patented auto-tuning
  - Patented adaptive sine
  - Advanced anti-cogging techniques
  - Auto-tuned look-up-table-based anti-cogging
  - Real-time built-in-test
  - Advanced unbalance and fault detection
- iXblue ProAxe graphical user interface
- Climatic chamber on demand
- Modular design with vertical and/or horizontal operation
- Wide variety of quality slip rings and rotary joints

BENEFITS

- Adaptive features and performances for different payloads
- Highest accuracy
- Unrivalled dynamic performances
- Lowest cost of ownership
- Frequency response testing capabilities

APPLICATIONS

Two-axis motion simulators are suited for fully automated calibration and verification of inertial systems:
- AHRS/Gyrocompass
- IMU/INS
- Optical seekers and sensors
- Radar systems
MAIN SPECIFICATIONS

Nominal Payload

Maximal weight (kg)  From <1 to 50 kg

Inertia Range  Not limited thanks to Auto-tuning feature

Dynamics performances

<table>
<thead>
<tr>
<th></th>
<th>Inner Axis</th>
<th>Outer Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Rate</td>
<td>± 3,000 deg/s</td>
<td>± 1,000 deg/s</td>
</tr>
<tr>
<td>Rate accuracy over 360 deg</td>
<td>&lt; 1 ppm</td>
<td>&lt; 1 ppm</td>
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<tr>
<td></td>
<td>&lt; 0.0001%</td>
<td>&lt; 0.0001%</td>
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<tr>
<td>Rate stability over 360°</td>
<td>&lt; 1 ppm</td>
<td>&lt; 1 ppm</td>
</tr>
<tr>
<td></td>
<td>&lt; 0.0001%</td>
<td>&lt; 0.0001%</td>
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<tr>
<td>Rate command resolution</td>
<td>Up to 0.00001 deg/s</td>
<td>Up to 0.00001 deg/s</td>
</tr>
<tr>
<td>Maximum acceleration</td>
<td>From ± 1,000 deg/s² to ± 40,000 deg/s²</td>
<td>&gt; 6,000 deg/s²</td>
</tr>
</tbody>
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Geometrics

Angular Freedom  Unlimited

Position Accuracy  < ± 2 arc sec (better than 0.7 arc sec RSS)

Positioning repeatability, bidirectional  < ± 1 arc sec or custom

Mechanical Wobble  < 1 arc sec / 2 arc sec

Orthogonality between axes  < 2 arc sec or custom

Axis intersection  < 5 mm-sphere or custom

Interface

Table-top

Standard diameter  From 300mm to 700 mm
Custom diameter  On demand
Table-top flatness  50 µm

Remote communication interfaces  RS-232 or RS-422, Ethernet
IEEE-488 (GPIB) on demand

Inputs  1 input per axis, BNC receptacle on front panel
±10 V with configurable sensitivity

Outputs  2 outputs per axis, BNC receptacle on front panel
± 10 V with configurable sensitivity

Slip-rings (Customizable)

No slip-rings
SR30 (30 ways 2 A / 210 V)
SR50 (50 ways 2 A / 210 V)
SR80 (80 ways 2 A / 210V)
SRSPE (Custom slip-rings based on customer requirements)²

Power supply  Single-phase and/or three-phase suited with local requirements

¹ These performances are measured with no payload and may not be compatible with some of the other configurations. Higher values are also possible on custom design. Please contact iXblue for more details.
² Please contact iXblue for more details.