G-SEATS

High realism and simulation capabilities for helicopter G-seats

At Moog, our team of experienced design engineers has earned a reputation for innovating world-class, flexible solutions for some of today's most challenging applications.

The Moog G-seat reflects the depth of experience our team of experts has gained in motion cueing. It features the same high fidelity controllers and user-friendly interface as our motion and control loading systems.

Typically incorporates 4 actuation channels driving electrical units that are invisibly mounted in the seat to comply with visual fidelity requirements. These channels are combined with a shoulder and lap belt tensioning system and are driven by high response brushless DC motors.

Every G-seat system is designed in close collaboration with our customers to ensure compliance to the demanding performance specifications, visual fidelity requirements and subjective tactile cueing of high-end training simulation.

ADVANTAGES

- The actuation can be extended to a 9 channel system to drive harness and leg straps individually and incorporate roll in the seat pan element.
- Simulates positive and negative G-forces by changing shape of the seat pan, altering the tension on the seat harness straps and raising or lowering the height of the seat bucket.
  The seat is controlled from its own control system, which responds to real-time software via Ethernet.
- Simulates positive and negative accelerations on the pilot body induced by aircraft movement in surge, sway and roll.
- Rotary wing simulation benefits from the high-performance vibration cues generated in all linear degrees of freedom.

G-SEAT APPLICATIONS

Moog G-seat solutions can be used in the following applications:

- Helicopter
- Vibration seats
- G-suit systems

SPECIFICATIONS

Moog brings years of motion cueing expertise to a number of challenging applications. From leading-edge G-seats to high-performance G-suit systems, our team of design engineers are available to help tailor a high fidelity solution that will meet your exact simulation needs.

HELICOPTER G-SEAT

With a long heritage in rotary wing simulation, our helicopter G-seats provide state-of-the-art performance for a wide range of applications.

Other systems

In addition to designing G-seats for fighter and helicopter training applications, Moog also provides an extensive series of vibration seats and anti-G-suit systems.

Services

Moog provides global support for installation assistance, onsite-tuning for maximum fidelity and acceptance assistance. Moog offers G-seat design based on modifications of an existing seat, seat drawings or reverse engineering.

SPECIFICATIONS

DOF	Excursion limits	Velocity	Acceleration
Cushion	± 25 mm (± 0.98 in)	> 65 mm/s (> 2.6 in/s)	> 600 mm/s² (> 23.6 in/s²)
Buffet	± 3 mm (± 0.11 in)	> 65 mm/s (> 2.6 in/s)	> 600 mm/s² (> 23.6 in/s²)
Backpad-Sway	± 12 mm (± 0.47 in)	> 85 mm/s (> 3.3 in/s)	> 1,200 mm/s² (> 47.2 in/s²)
Backpad-Surge	± 10 mm (± 0.39 in)	> 30 mm/s (> 1.2 in/s)	> 400 mm/s² (> 15.7 in/s²)
Seat Height	± 25 mm (± 0.98 in) + seat travel	> 65 mm/s (> 2.6 in/s)	> 600 mm/s² (> 23.6 in/s²)

FORCE CAPACITY

Cueing Unit	Minimum Force
Cushion	> 1,130 N (> 254 lbf)
Backpad-Sway	> 700 N (> 157 lbf)
Backpad-Surge	> 700 N (> 157 lbf)
Seat Height	> 2,800 N (> 629 lbf)

G-SUIT CONTROLLER

Simulation Range	2 - 9 g (64.3 - 290 ft/s²)
Scale	0.04 - 0.06 bar/g (0.6 - 0.9 psi/g)
Tolerance	± 4% per g
Supply Pressure	4.1 - 4.8 bar (60.0 - 70.0 psi)

POWER REQUIREMENTS

Power Requirements	3 phase 400 VAC, 50-60 Hz
Continuous Power Consumption	3 kW

ELECTRONICS AND SOFTWARE

Motion Control Computer, for both G-seat and G-suit Controller
Maintenance and Diagnostics Computer
G-seat Cueing Software
Ethernet UDP and TCP/IP Host Interface

Moog has offices around the world. For more information or the office nearest you, contact us online.

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INTERESTED IN FIGHTER G-SEATS? WE PARTNER WITH REISER SIMULATION AND TRAINING. CONTACT INFO@REISER-ST.COM.

G-Seats
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This technical data is based on current available information and is subject to change at any time by Moog. Specifications for specific systems or applications may vary.

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