

The next best simulation to real world testing

Destination One Second of Arc



Motion Simulation

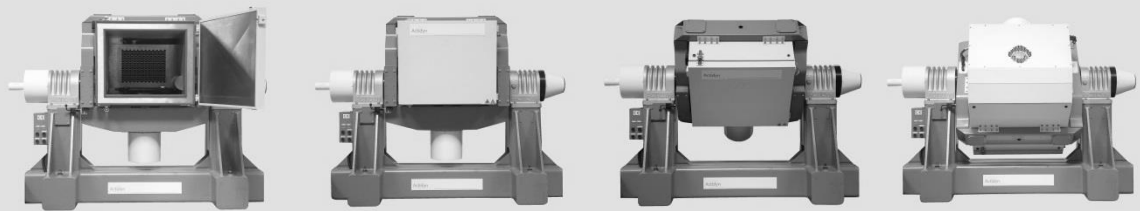
Performance

ACTIDYN has developed a family of Rate Tables, Flight Motion Simulators and Laboratory Centrifuges that increase the reliability and reduce the cost of Motion Simulation.

The performance of our line of Motion Simulators, powered by **AXIDYN™**, **ACTIDYN**-developed Controllers and Drives, provides for medium-, high- and ultra-high precision centrifugation and motion simulation capabilities to subject Accelerometers, Inertial Measurement Units, Gyroscopes, Fiber-Optic Gyroscopes, Micro-Electro-Mechanical Systems (MEMS) to any type of user-defined motion profile.

Being developed in the 21st century, all our Rate Tables, Flight Motion Simulators and Laboratory Centrifuges take advantage of the latest technologies, as well as over 30 years of lessons learned in the Motion Simulation industry.

By developing a range of ultra precise Inductosyn™-based real-time measurement loops and tailoring temperature or vacuum chambers as well as slip rings and rotary joints precisely for each Rate Table, Motion Simulator or Centrifuge, our Integrated Motion Simulation Systems require crews that are an order of magnitude smaller than standard to operate and setup times reduced by a factor of three to four.



Incorporating hundreds of innovations in technical design and simulation facilities, along with a low-overhead corporate environment, **ACTIDYN** is demonstrating that through simplicity, both reliability and low cost can be attained in Motion Simulation.



*Single-Axis
Motion Simulator*

*Two-Axis Motion Simulator
With Temperature Chamber*

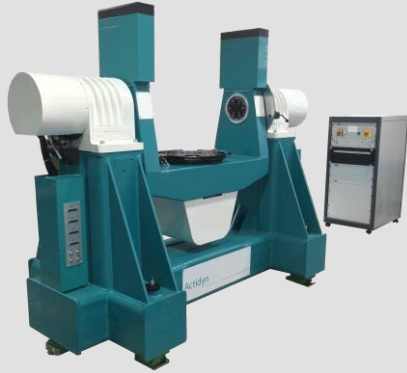
*Three-Axis Motion Simulator
With Temperature Chamber*



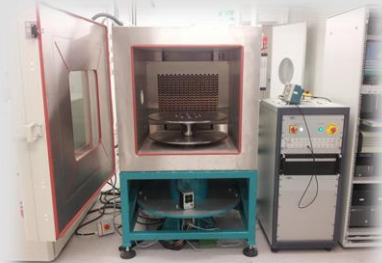
Three-axis Motion Simulator with climatic chamber



Two-axis Motion Simulator with open gimbal for Optical Field of View



Single axis double table tops inside the Thermal Chamber and one outer tray for the measurement devices INUs or MEMS production



Two-axis with Combined Vacuum and Thermal Chamber for Space Technology



Two-axis Table. with climatic chamber and optical path for alignment



Single horizontal axis Rate Table for accelerometer tests



Laboratory Centrifuge with on board counter-rotating satellite rate table and temperature chamber



Laboratory Centrifuge with automatic centrifuge balancing mechanism



Single horizontal axis Motion Simulator with climatic chamber for mass production



ACTIDYN is based on the philosophy that through simplicity, reliability and low-cost can go hand-in-hand. By eliminating the traditional layers of management internally, and engineering sub-contractors externally, we keep our costs low while streamlining decisions. Likewise, by keeping the final assembly and safety-critical operations in-house we reduce our costs, keep tighter control of quality, and ensure a closed real-time feedback loop between the engineering and production teams.

ACTIDYN Motion Simulation Equipment have been designed to eliminate the main causes of setup down time, to maximize ergonomics and ensure maximum robustness and top accuracy through stability. Though each one of them is unique, all of our Rate Tables, Motion Simulators and Lab Centrifuges are designed around the reinforced vibration-proof armature principle and oversized Inductosyn™ monitored direct drive concept for optimal precision and power. To ensure manufacturing reliability and system performance, we have a full quality assurance program and an exhaustive acceptance test program.

Our Rate Tables, Motion Simulators and Centrifuges are designed to serve a broad range of modeling experts that includes the US Army Corps of Engineers, the French National Defense Research Lab as well as civilian manufacturers such as Airbus.

The US Army Corps of Engineers Choice for their Simulation Program

In 1993, the US Army Engineer Research and Development Center announced the selection of **ACTIDYN**'s C84 Centrifuge to perform their Simulation Experiments. The 8-meter radius machine is the most powerful Centrifuge installed on the planet capable of bringing payloads of up to 4 tons to stable accelerations of up to 350g. The ERDC cited **ACTIDYN** as being the "premier company in its field" and as being "the foremost leader in the design and construction of centrifuges. The centrifuge has been installed and commissioned in 1995 and has been working flawlessly ever since. **ACTIDYN** has provided unparalleled support and maintenance of the machine since its commissioning".

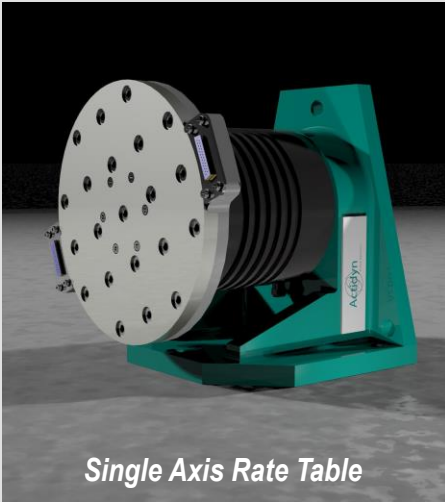
Among **ACTIDYN** Motion Simulation Equipment' many strengths, the US Army cited :

- Fully automatic on-arm in-flight balancing regardless of UUT configuration
- Structural safety factors in excess of industry standards
- Ultra low kWh per pound of payload
- Industry's simplest control system to operate

ACTIDYN Motion Simulator and Centrifuge features that enhance reliability:

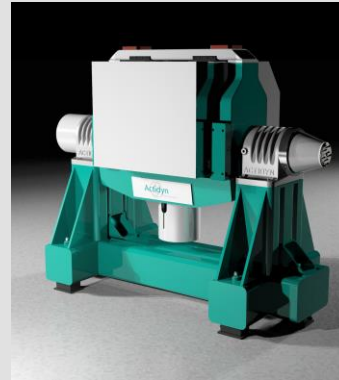
- Robust structure with high safety margins
- All equipment designed to work non-stop for weeks under full load
- Redundant fail-safe security systems at all critical levels
- Drive system designed for a maintenance-free use
- Rotary Joints tailored to Motion Simulation systems with Temperature Chamber
- Designed to host additional slip rings and connectors for maximum versatility

The chart below provides a few of the parameters attainable on some of our Rate Tables. For your specific needs, contact us at: contact@actidyn.com.

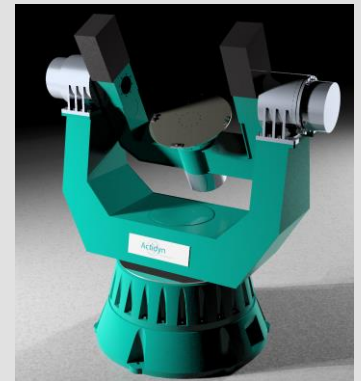
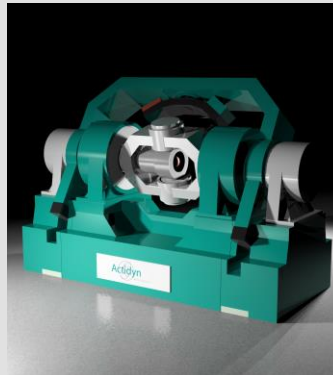


Rate Table Model	ST 1112	ST 1114	ST 1144	ST 1194	ST 1196	Units																														
Maximum payload mass	40	<table border="1"> <thead> <tr> <th>Model</th> <th>Capacity</th> <th>Max. Payload</th> <th>Max. Height</th> <th>Max. Dia.</th> <th>Max. Weight</th> </tr> </thead> <tbody> <tr> <td>ST 1114</td> <td>40</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1144</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1194</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1196</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> </tbody> </table>		Model	Capacity	Max. Payload	Max. Height	Max. Dia.	Max. Weight	ST 1114	40	100	100	100	100	ST 1144	100	100	100	100	100	ST 1194	100	100	100	100	100	ST 1196	100	100	100	100	100	70 (100)	70 (100)	Kg
Model	Capacity	Max. Payload	Max. Height	Max. Dia.	Max. Weight																															
ST 1114	40	100	100	100	100																															
ST 1144	100	100	100	100	100																															
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Maximum payload height	200	<table border="1"> <thead> <tr> <th>Model</th> <th>Capacity</th> <th>Max. Payload</th> <th>Max. Height</th> <th>Max. Dia.</th> <th>Max. Weight</th> </tr> </thead> <tbody> <tr> <td>ST 1114</td> <td>40</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1144</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1194</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>ST 1196</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> </tbody> </table>		Model	Capacity	Max. Payload	Max. Height	Max. Dia.	Max. Weight	ST 1114	40	100	100	100	100	ST 1144	100	100	100	100	100	ST 1194	100	100	100	100	100	ST 1196	100	100	100	100	100	540	540	mm
Model	Capacity	Max. Payload	Max. Height	Max. Dia.	Max. Weight																															
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ST 1194	100	100	100	100	100																															
ST 1196	100	100	100	100	100																															
Table top diameter	200	400	400	400	600	mm																														
Wobble	± 1	± 1	± 1	± 1	± 1	Arc second																														
Position Accuracy	± 1	± 1	± 1	± 1	± 1	Arc second																														
Command Increment	0.036	0.036	0.036	0.036	0.036	Arc second																														
Repeatability	± 0.2	± 0.2	± 0.2	± 0.2	± 0.2	Arc second																														
Maximum rate	± 2,000	± 2,000	± 2,000	± 3,000	± 4,000	° .s ⁻¹																														
Accuracy	± 0.001	± 0.001	± 0.001	± 0.001	± 0.001	%																														
Command increment	0.00001	0.00001	0.00001	0.00001	0.00001	° .s ⁻¹																														
Stability Over 360°	0.0001	0.0001	0.0001	0.0001	0.0001	%																														
No load Peak acceleration	±10,000	±12,000	±16,000	±18,000	±20,000	° .s ⁻²																														
Servo bandwidth	> 50	> 50	> 50	100	100	Hz																														

Motion Simulators



Two to Five Axis Motion Simulators



Motion Simulator Model	ST 2356C		ST 2416		ST 3157			Units
	Inner Axis	Outer Axis	Inner Axis	Outer Axis	Inner Axis	Middle Axis	Outer Axis	
Maximum payload mass	120		40			100		Kg
Maximum payload dimensions	540		Height: 310		Length: 700 x Width: 700 x Depth: 900			mm
Table top diameter	600		600					
Wobble	± 1	± 2	± 2	± 4	± 2	± 2	± 1	Arc second
Orthogonality	± 2		± 5		± 2	/	± 2	Arc second
Position Accuracy	± 1	± 1	± 10	± 10	± 1	± 1	± 1	Arc second
Command Increment	± 0.036	± 0.036	0.036	0.036	0.036	0.036	0.036	Arc second
Repeatability	± 0.2	± 0.2	± 0.1	± 0.1	± 0.2	± 0.2	± 0.2	Arc second
Maximum rate	± 1,200	± 600	± 100	± 100	± 1,500	± 1,000	± 600	° .s ⁻¹
Accuracy	± 0.001	± 0.001	± 0.005	± 0.005	± 0.001	± 0.001	± 0.001	%
Command increment	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	° s ⁻¹
Stability Over 360°	0.0001	0.0001	0.0005	0.0005	0.0001	0.0001	0.0001	%
No load Peak acceleration	6,000	2,000	100	100	4,000	2,000	1000	° .s ⁻²
Servo bandwidth	> 50	> 30	>20	>30	50	25	25	Hz

The chart above provides a few of the parameters attainable on some of our Motion Simulators. For your specific needs, contact us at: contact@actidyn.com.

The following provides an overview of some of our Lab Centrifuges:



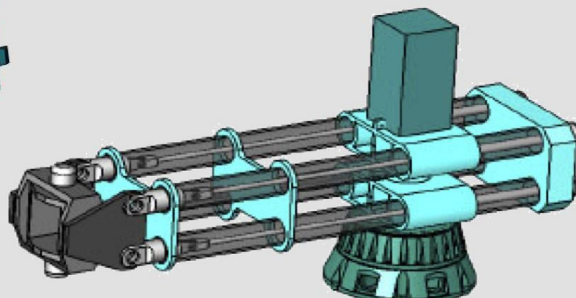
Centrifuge Model	Structure	Centrifuge Type	Enclosure / Chamber Diameter (m)	Nominal Radius (m)	Payload dimensions (m)			Payload (Kg)	Balancing
					Length	Width	Height		
LC250	Drum top lift-up-door Direct Drive RT type	Table Top	0.6	0.25	0.1	0.1	0.1	20	Symmetrical Payload
LC350			0.8	0.35	0.1	0.1	0.1	20	
LC350-V			0.8	0.35	0.1	0.1	0.1	20	
LC450-TT	Drum top lift-up-door Direct Drive ST type	Table Top	1.25	0.45	0.3	0.3	0.3	40	
LC500			1.3	0.5	0.3	0.3	0.3	40	
LC600	Self contained open door centrifuge Direct Drive Oswald- Balancing gage	Symmetrical arm	1.6	0.6	0.4	0.4	0.4	40	
LC700			1.8	0.7	0.4	0.4	0.4	100	
LC1000			2.5	1	0.5	0.5	0.5	100	
LC1100			2.8	1.1	0.6	0.6	0.6	120 / 150	
LC1500			3.6	1.5	0.6	0.6	0.6	120 / 150	
LC2000			4.8	2	0.7	0.7	0.7	150 / 200	
LC2500	5.6	2.5	0.8	0.8	0.8	150 / 200	Fully Automatic Balancing		
LC3000	Beam centrifuge with optional pre-fabricated enclosure- Belt drive- civil engineering base	Asymmetrical arm	7	3	1	1		1	500 / 1,500
LC4000			9	4	1	1		1	500 / 1,500
LC5000			11.2	5	1.2	1.2		1	500 / 1,500
LC6000			13.4	6	1.4	1.4	1	1,500 / 2,500	

But we also manufacture special Centrifuges: Drum Centrifuge, High-Precision Beam Centrifuges, Vibrafuges and Direct Drive High-Speed Centrifuges. For your specific needs, contact us at: contact@actidyn.com.



Vibrafuge

High precision Beam Centrifuge



**High-speed
Centrifuge**

ACTIDYN

ACTIVE DYNAMICS



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