FDA -332

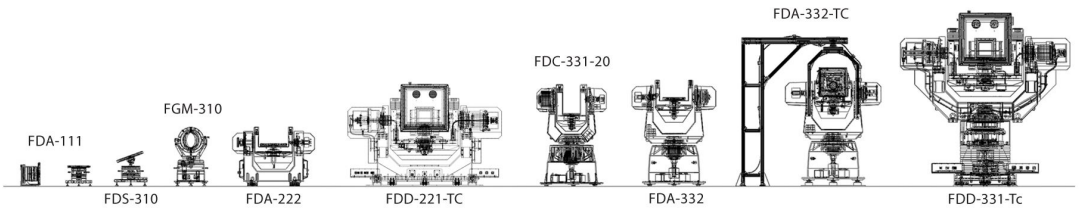
The FDA-332 motion simulator is a high dynamic precision test instrument. The system is designed to simulate both vibration and precise slow motion while maintaining high pointing accuracy. The simulator is often used as a Flight Motion Simulator (FMS) in a Hardware-In-The-Loop (HWIL) simulation environment or for the development, testing and calibration of any inertial navigation sensors and systems, such as INSs, IMUs, IRUs, FOGs, RLGs and micro electromechanical systems (MEMS).

This model has three degrees-of-freedom; Roll, Pitch and Yaw or inner, middle and outer respectively. The middle gimbal has a “U-shape” design allowing unobstructed optical access to the tabletop. For this reason, the simulator is often used for the development, testing and calibration of stabilized optical sights or seekers.

Slip ring assemblies featuring power rings and shielded signal rings permit electrical access to the UUT and allow to simulate continuous rotation. Beside the standard slip ring configuration, a wide variety of slip ring capsule designs and wiring schematics are available.

AC direct drive brushless motors are used for all the simulator's axes. The servo feedback transducers are also direct mounted to the axes and perform high precise positioning performances.

The ACCUDYNA nonlinear multi-variable controller is embedded in a special console, which has a power cabinet with amplifiers, power supplies, chokes, and motor filters. The controller can be configured as determined by the customer’s application. It is capable of providing position, rate and acceleration control either manually from the GUI or remotely through the RS232/RS422 computer interfaces. UDP (Up to 4 kHz) can be an option.



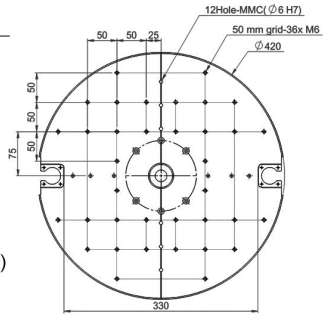
We can do more ;

Version E: October, 2019.

FDA-332 PARAMETERS

UUT SPECIFICATIONS

UUT weight	25 Kg (Option: Up to 50)
UUT dimensions	H: 400 mm, D:300 mm
Flatness	0.03 mm
Material	Aluminum (Hard Anodized)
Table top mounting pattern	50 mm grid M6,12Hole-MMC(ø6H7)
Table top distance from floor	1442 mm
Axes intersection distance from floor	1454 mm
Electrical lines to UUT	50 lines rated 2A (Option: Up to 70 lines) With D-Sub or KPT style type connectors



SIMULATOR SPECIFICATIONS

		INNER AXIS (ROLL)	OUTER AXIS (PITCH)	OUTER AXIS (YAW)
Degrees of freedom				
Angular freedom		Continuous	Continuous (Option: ±180°) Direct / AC brushless motors	Continuous
Position				
Accuracy	arcsec	< ± 3 P-P	< ± 3 P-P	< ± 3 P-P
Repeatability	arcsec	< 1.5	< 1.5	< 1.5
Cmd. resolution	deg	0.00001	0.00001	0.00001
Rate				
Range	°/s	± 1500 (Option: 3600)	± 1000 (± 100 with limited rotation)	± 800
Resolution	°/s	0.00001	0.00001	0.00001
Stability (Over 360° interval)	%	< 0.0001 (1 ppm)	< 0.0001 (1 ppm)	< 0.0001 (1 ppm)
Dynamic				
Maximum torque	N.m	42.2	115	637
Momentum inertia	kg.m²	0.13	3.4	41.3
Bandwidth (-3db, no load)	Hz	Up to 120	Up to 50	Up to 35
Acceleration (no load)	°/s²	± 16000	± 1700	± 800
Orientation error				
Wobble	arcsec	< ± 3 P-P	< ± 5 P-P	< ± 3 P-P
Orthogonality	arcsec	< 3	< 3	
Operating and physical conditions				
Operating temperature	°c	22 ± 2		
Storage temperature	°c	0 to 50		
EMC/EMI considerations		According to IEC61000-5		
Rate table dimensions	mm	(L x W x H) 1300 x 1200 x 1900		
Rate table weight	kg	850		
Power supply		380V ± 10 %, 50 Hz, 3 Phase, N, PE, 20 A		
Software				
Language of software		Russian or English		

The specifications identified in this data sheet are representative of standard systems. To satisfy customer specific requirements ACCUDYNA is able to design systems with specifications that are increased or decreased relative to standard systems.