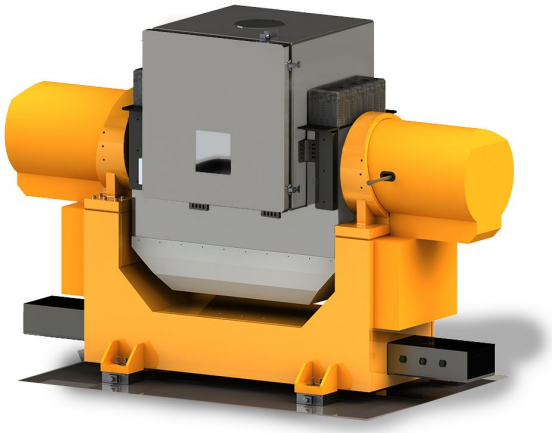
FDD -221-TC

The FDD-221-TC 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 allows testing of several medium and large Inetial Measurement Units (IMU's) or Micro Electro Mechanical Systems (MEMS) sensors simultaneously and generally for the development, testing and calibration of any inertial navigation sensors and systems.

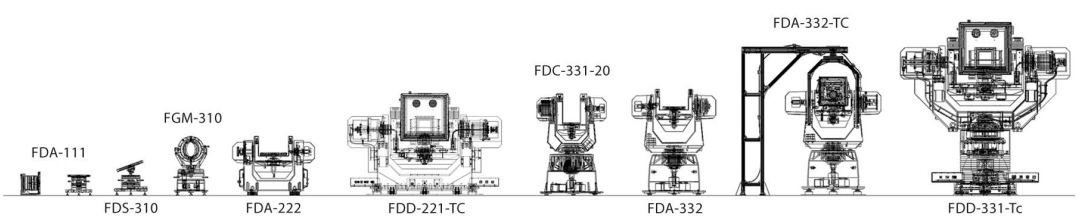


This model has two degrees-of-freedom, Roll and Pitch or inner and outer respectively. The simulator's outer axis is equipped with magnetic brake to facilitate the safe loading/unloading of the UUT. A temperature chamber with gas or mechanical cooling and electric heating is fastened to the outer axis gimbal. The simulator is secured to the facility floor using three leveling wedges.

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.



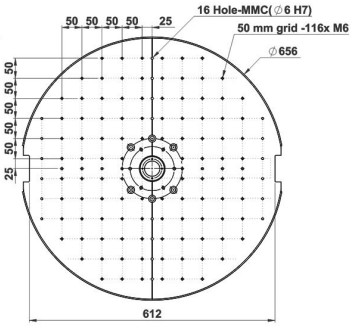
We can do more :

Version A: October, 2019.

FDD-221-TC PARAMETERS

UUT SPECIFICATIONS

UUT weight	50 Kg (Option: Up to 100)
UUT dimensions	H: 550 mm, D:600 mm
Flatness	0.03 mm
Material	Aluminum (Hard Anodized)
Table top mounting pattern	50 mm grid M6, 16Hole-MMC(ø6H7)
Table top distance from floor	1034 mm
Axes intersection distance from floor	1104 mm
Electrical lines to UUT	70 lines rated 2A, 150VDC (Option: Up to 100 lines) With D-Sub or KPT style type connectors



SIMULATOR SPECIFICATIONS

		INNER AXIS (ROLL)	OUTER AXIS (PITCH)
Degrees of freedom			
Angular freedom		Continuous	Continuous (Option: ±180°)
		Direct / AC brushless motors	
Position			
Accuracy	arcsec	< ± 2 P-P	< ± 2 P-P
Repeatability	arcsec	< 1	< 1
Cmd. resolution	deg	0.00001	0.00001
Rate			
Range	°/s	± 1500 (Option: 3600)	± 600 (Option: 1000) (± 100 with limited rotation)
Resolution	°/s	0.00001	0.00001
Stability (Over 360° interval)	%	< 0.0001 (1 ppm)	< 0.0001 (1 ppm)
Dynamic			
Maximum torque	N.m	115	858
Momentum inertia	kg.m^2	1.4	115
Bandwidth (-3db, no load)	Hz	Up to 120	Up to 50
Acceleration (no load)	°/s^2	± 5'000	± 500 (Option:1000)
Orientation error			
Wobble	arcsec	< ± 3 P-P	< ± 3 P-P
Orthogonality	arcsec	< 3 (Option: 1.5)	
Temperature chamber			
Temperature range	°c	-45 to +90 (Option: -75 to +150)	
Stability	°c	± 1	
Thermal gradiant (Heating & cooling)	°c/min	± 3 (Option: ±10 with LN2)	
According to standard IEC 60068-3-5		(Option: Linear function of temp. rate)	
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) 2,630 x 1,528 x 1,880	
Rate table weight	kg	2130	
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.