

SLIP TABLES VIBRATION TESTING SYSTEMS

©Classical Shock

©Random Test

©Sine-on-Random

©Swept Sine

©Sine and Random on Random

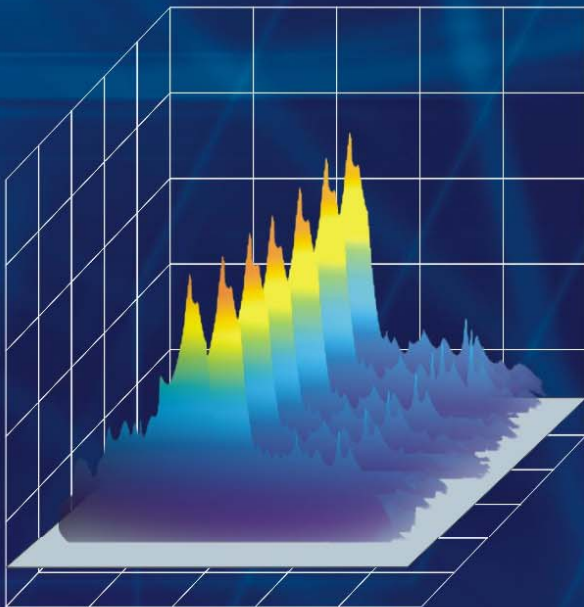
©Step Sine

©Sine Resonance Phase Track & Dwell

©Random-on-Random

©Shock Response Spectra

©Road Simulation



©Shaker Systems

©Power Amplifier

©Vertical Guidance System

©Guided Oil Film Slip Tables

©Hydrostatic Bearing Slip Tables

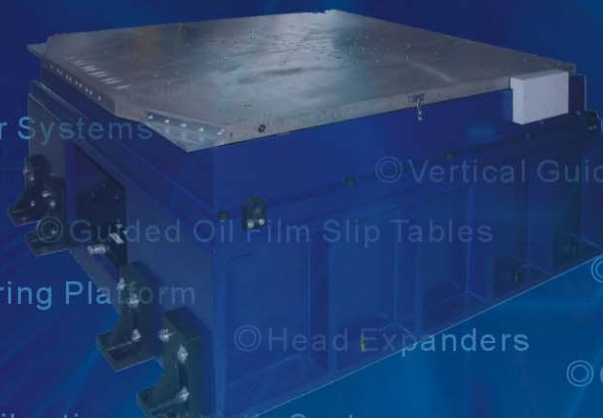
©Load Bearing Platform

©Head Expanders

©Customized Fixtures

©Combined Vibration - Climatic System

©Vibration Control System



ETS Slip Table

- ◇ Light weight magnesium slip plate
- ◇ Economical aluminium slip table available
- ◇ Low profile reaction mass with total system isolation (Less than 5 Hz)
- ◇ Stiffened and welded steel body design with high mass to force ratios
- ◇ Designed for combined environment applications
- ◇ Standalone slip table available to interface to any shaker (existing or new)



ETS Solutions slip tables are designed to provide the optimum test platform for horizontal testing with any shaker combination. Our unibase concept provides a structural steel body to align the shaker and table on a rigid platform. All the slip tables are designed with precise grinded natural granite slab with a selection of guidance bearings to meet different applications and budgets. The stiffened and welded body provides good reaction mass and damping. The isolation system reduces vibration transmission to the floor and prevents any interference between lab equipments.

Rotation of shaker body to couple the slip tables can be performed quickly and easily by one person using the rotation System. Slip plate alignment with shaker is always ensured with mechanical stops installed. Slip plates can be provided in almost any size from 300 mm square (for small shakers) to 2 m square for large sized specimen test. Different types of restraining bearings are available to meet different application requirements and operating budgets.

Driver Bars

ETS driver bars provide perfect link between shaker and slip table.

- ◇ Magnesium driver bars
- ◇ FEM design
- ◇ Casting single pieces
- ◇ Precision coupling
- ◇ Excellent force transmission



Ordering Information

A A X X X B

Material
M- Magnesium
Al- Aluminium

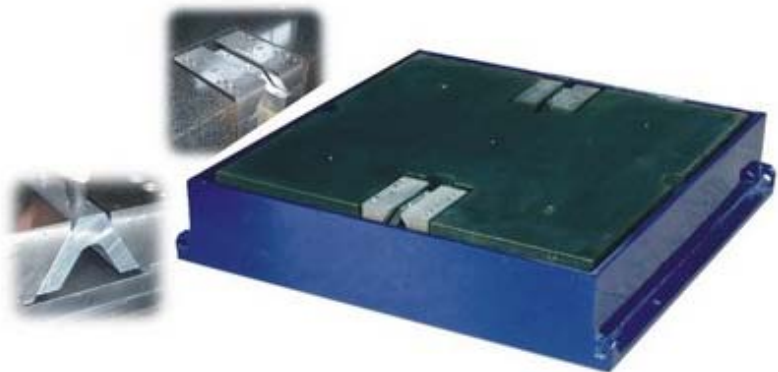
Working Area Dimension
Unit:mm

GT-V-Groove Guide OilFilm
BT-Hydraulic Bearing

GT Series

GT Series, guided oil film tables are designed with less expensive guided V-Groove bearings, combined with magnesium slip plate. Oil is supplied through the granite slab port holes and is dispersed throughout the underside of the slip plate. The oil film provides a low friction slip surface and a damping medium for restraint of pitch, roll and yaw moments.

- ◇ Magnesium slip plate
- ◇ Low pressure hydraulic pump
- ◇ Self contained oil Reservoir with oil filter
- ◇ Yaw restraint by V-Groove guide bearings combining with the armature guidance system
- ◇ Less expensive technique to perform horizontal testing



BT Series

The BT Series design provides a high over-turning moment and cross-axial restraint. This concept combines a standard slip table assembly with high pressure 3000 PSI hydrostatic bearings to provide high dynamic moment restraint while preserving the damping characteristics of guide oil film.

This system allows testing of heavy products with high center of gravity by reacting moments through the hydrostatic bearings.

- ◇ Heavy products testing with high centers with restraint moments by hydrostatic bearings
- ◇ High pressure 3000 PSI Hydraulic Power Supply
- ◇ Hydrostatic Journal Bearings to restrain high pitch, roll and yaw moments
- ◇ Pressure Interlocks
- ◇ Reservoir Oil Filter



GT Series Specifications

Slipplate Model	Shaker		Working Area	Thickness	Usable Frequency	Slipplate Mass	Max. Payload	Driver bar Weight	Bearing Qty.	Mass per Bearing	Over Turning Moment		
	Model	Sine Force									Pitch Metric	Roll Metric	Yaw Metric
GT300M	L215M	(kgf) 200	(mm*mm) 300*300	(mm) 25	(Hz) 2000	(Kg) 5	(Kg) 300	(Kg) 1.4	1	(Kg) 0.58	(Nm) 1036	(Nm) 1036	(Nm) 203
	L215M	200						1.4					
	L315M	300						1.4					
GT400M	L323A	300	400*400	25	2000	9	300	2.8	1	0.58	1295	1295	203
	L620M	600						2.2					
	L315M	300						1.4					
GT500M	L323A	600	500*500	25	2000	14	400	2.8	1	0.58	2529	2529	203
	L620M	1000						2.2					
	M124M	1500/2000	500*500	38	2000	21	400	4.6	1	0.58	2529	2529	203
GT600M	M232A	300	600*600	25	2000	19	550	2.8	1	0.58	4370	4370	203
	L620M	600						2.2					
	M124M	1000						2.2					
GT700M	M232A	1500/2000	600*600	38	2000	30	550	4.6	1	0.58	4370	4370	203
	M337A	3000						5.8					
	M437A	4000						8.0					
GT800M	M437A	4000	600*600	50	2000	39	550	8.0	1	0.58	4370	4370	203
	M124M	1000						4.6					
	M232A	1500/2000	700*700	38	2000	40	800	5.8	2	0.58	8536	8536	203
GT900M	M337A	3000	700*700	50	2000	53	800	8.0	2	0.58	8536	8536	203
	M437A	4000						8.0					
	M748A	6000/7000						19.7					
GT1000M	M232A	1500/2000	800*800	50	2000	69	900	5.8	2	0.58	11642	11642	203
	M337A	3000						8.0					
	M437A	4000						8.0					
GT1100M	M748A	6000/7000						19.7					
	M437A	4000						8.0					
	M544A	5000						8.0					
GT1200M	M748A	6000/7000	1000*1000	50	2000	100	1200	19.7	2	0.58	20232	20232	203
	M437A	4000						8.0					
	M544A	5000						8.0					
GT1300M	M748A	6000/7000	1100*1100	50	2000	124	1200	19.7	2	0.58	27192	27192	203
	M437A	4000						8.0					
	M544A	5000						8.0					
GT1400M	M748A	6000/7000	1200*1200	50	2000	145	1200	19.7	2	0.58	34961	34961	203
	M437A	4000						8.0					
	M544A	5000						8.0					

BT Series Specifications

Slipplate Model	Working Area	Thickness	Usable Frequency	Slipplate Mass	Hydraulic Bearing Qty.	Mass Per Hydraulic Bearing	Max. Payload	Over Turning Moment		
								Pitch Metric	Roll Metric	Yaw Metric
BT700M	(mm*mm) 700*700	(mm) 50	(Hz) 2000	(Kg) 53	2	(Kg) 4.8	(Kg) 6500	(Nm) 51216	(Nm) 36851	(Nm) 43184
BT800M	800*800	50	2000	69	2	4.8	7500	54260	39019	45725
BT900M	900*900	50	2000	87	2	4.8	8000	61490	51329	46741
BT1000M	1000*1000	50	2000	100	2	4.8	8500	73069	60876	52837
BT1100M	1100*1100	50	2000	124	2	4.8	8500	86446	71173	58730
BT1200M	1200*1200	50	2000	145	3	4.8	10000	104055	83733	69095
BT1300M	1300*1300	50	2000	183	3	4.8	11000	129410	103398	74784
BT1400M	1400*1400	50	2000	212	3	4.8	11500	137498	109860	79458
BT1500M	1500*1500	50	2000	243	3	4.8	12000	161763	129248	93481
BT1600M	1600*1600	50	2000	276	3	4.8	12500	188687	152920	94294
BT1700M	1700*1700	60	2000	375	3	4.8	13000	212273	172035	106081
BT1800M	1800*1800	60	2000	420	3	4.8	13500	238859	191150	117868

Remarks:

- 1) Slipplate inserts standard grid pattern: Armature inserts pattern plus 100mm*100mm grid.
- 2) The driver bar weight including connecting bolts weight.
- 3) All the specification here is for magnesium material. Please contact ETS for aluminum material specification.

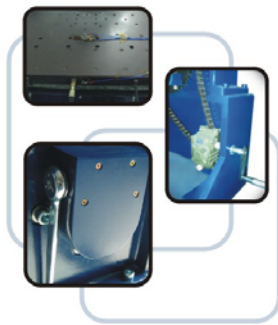
ETS Solutions offers options of unibase or standalone slip table to meet different requirements for horizontal test. The unibase is built-in with the vertical shaker body by a common steel base platform. The stand alone slip table is customized design with an independent steel base platform to match with any new or existing shaker.

Unibase Slip table

The unibase design is the optimized solution for horizontal vibration testing. The common base reinforced assembly allows easy and consistent alignment between shaker and the slip table. The low profile concept conveniently fit for environmental testing with chamber.

Stand Alone Slip table

The standalone design, an independent steel platform supported by the leveling feet. The customised design allows the feasibility of any vertical shaker from ETS or other manufacturers to couple with the standalone slip table assembly.



Standard Accessories

Geared Aided Rotation (ETS system only)

Rotation of the shaker body to work with the slip table is achieved by either ratchet crank rotation and chain wheel gear reducer. Rotating of the shaker is performed with ease by the rotation aid. Mechanical stop is installed to align the shaker with slip table precisely.

Safety Protection

The stainless steel guard is installed in front of slip plate. The safety protection prevents any operators from putting their fingers into the oil trough. It will prevent any falling foreign particles or contaminants from falling into the oil trough during the test.

Optional Accessories

Air Isolation Feet

Optional air isolation feets prevent the vibration from the shaker during operation from transmitting to the floor and building. The need for an seismic base can be eliminated.

Air Caster

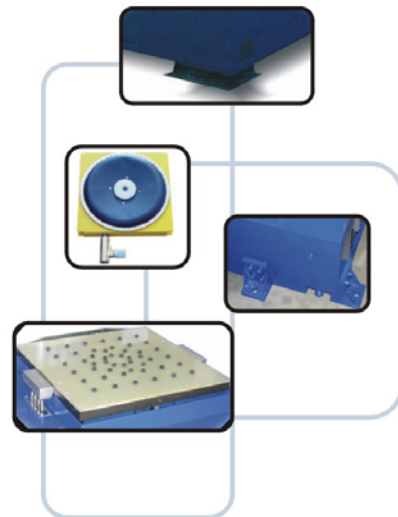
The air caster is the load module system, which utilize the air film to float the shaker system. The load movement is easy, exceptionally smooth and omni-directional.

Leveling Feet

The leveling feet is combined with the outrigger support and adjustable foot. The leveling feet could provide efficient precision mounting and swift screw adjustment. This allows consistent and solid support for the heavy assembly.

Thermal Barriers

Glass fiber thermal insulating sheet is available when the slip table is to be integrated with the chamber for combined vibration-temperature testing. The thermal barrier isolate the thermal.



Slip Table System Options

Shaker Model	Sliptable Model	Inserts	Inserts						Aided rotation ratchet crank	Aided rotation chain wheel	Thermal barrier	Air caster	Air isolation feet	Leveling feet	Uni-base	Stand alone base	Table safety guard	100psi oil pump	3000psi oil pump
			M8	M10	M12	1/2"UNC	3/8"UNC												
L215M	GT300M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT400M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
L315M	GT400M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT500M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
L323A	GT400M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT500M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT600M	■	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
L620M	GT400M	■	□	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT500M	■	□	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT600M	■	□	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M124M	GT500M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT600M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT700M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M232A	GT500M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT600M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT700M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M337A	GT900M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT900M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M437A	GT600M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT700M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M544A	GT900M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT1000M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT1100M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT1200M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
M748A	GT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT900M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT1000M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	GT1100M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
BT Series	BT1200M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	BT800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
	BT900M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
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	BT1700M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-	
BT1800M	□	■	-	-	-	-	■	-	□	□	□	□	■	□	■	■	-		

■ Standard □ Optional (By Special Order) - Not Available

Specifications are correct at the time of publication. In keeping with our commitment to continuous product improvement, The information herein is subject to change. ETS reserves the rights to amend specifications without prior notice.



Website: www.etssolution.com
Email: sales@etssolution.com

ETS SOLUTIONS NORTH AMERICA OFFICE
30318, Mayacamás, Murrieta, CA 92563, USA
Tel: +1-949-292-5054
Fax: +1-951-696-1557

ETS SOLUTIONS CHINA OFFICE
No. 8 Zijin South Road, Suzhou, China
Tel: +86-512-6657 6316
Fax: +86-512-6657 6317

Represented by:



ETS SOLUTIONS UK OFFICE
CVMSL - Millside, The Moor Melbourn,
Royston, Herts, SG8 6ED U.K.
Tel: +44 (0) 1763 262 112
Fax: +44 (0) 1763 263 335

ETS SOLUTIONS ASIA PACIFIC OFFICE
Rochor Post Office, PO Box 969 Singapore 911837
Tel: +65-9489 4775
Fax: +65-6234 2205

