

V-Series for Package System

L.A.B. Transportation Simulators are used to determine the ability of packages and products to withstand shocks and vibration encountered during the following course of typical handling and transportation:

- In-plant handling and warehousing
- Shipping
- Distribution warehousing
- Final shipping

TRANSPORTATION SIMULATOR FEATURES:

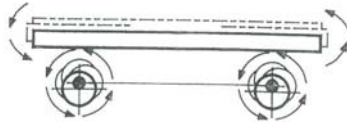
- Adjustable frequency
- Fixed displacement
- Accommodates large and small packages
- Remote frequency control
- Easy-installation and Low-maintenance

TEST LEVELS:

- Frequency: 2-5 Hz (120-300 rpm)
- Fixed displacement: 1" (25 mm)
- Direction of Vibration: Rotary (Circular)

Method of Motion:

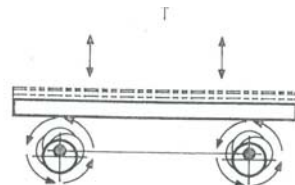
- Rotary or Circular Synchronous Motion



- Non-Synchronous Motion (N/S)



- Vertical Linear Motion (V/L)

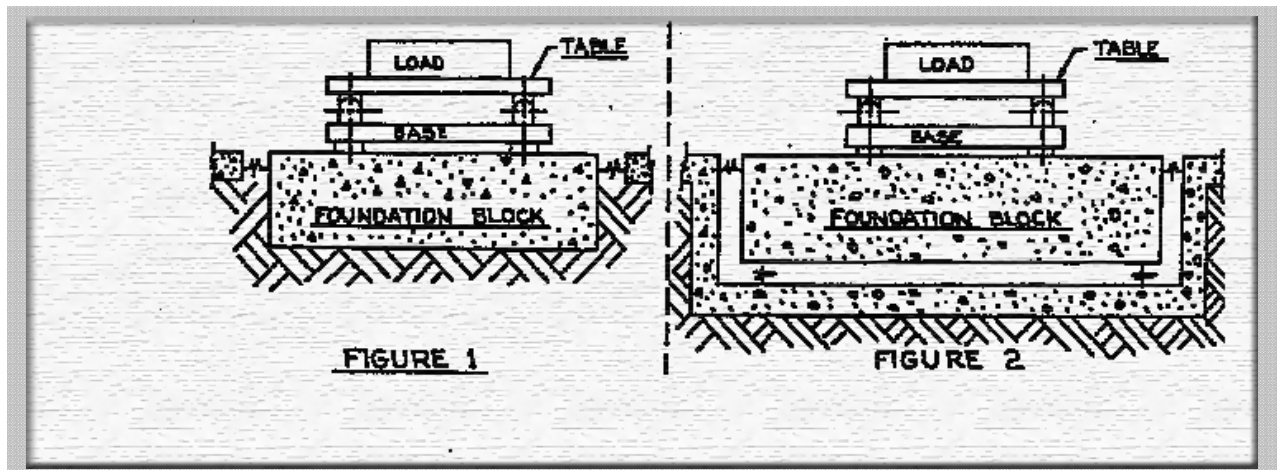


Foundation Requirement

A good grade, reinforced concrete factory floor, which is at least 6" thick, is adequate for a rigid connection of most vibration package testing machines. It is always desirable to mount this type of test system on a ground floor. When it is necessary to mount the machine on an upper floor, it should be done over one of the main building support girders and as near as possible to a column.

Occasionally, either a larger machine, the presence of extremely sensitive equipment in the same area, or a unique soil condition which leads to excessive transmission of the reaction vibration waves through the sub structure and into surrounding areas may necessitate a special foundation for a package tester.

Figures 1 and 2 below are schematic representations of the 2 most common forms of foundation block. Figure 1 is for smaller machines and those cases where there is good substructure (well compacted and drained soil etc.) underneath the floor. This arrangement would also be suitable for larger machines not likely to be loaded to full capacity with very dense, rigid product. The shock forces into the surrounding soil will be more modest in these cases. The minimum weight of such a block is approximately 10 times the machine load capacity. Ratios of 15 to 20 times the payload weight are desirable. The higher the ratio, the lower will be the disturbance into surrounding areas.



Where it is necessary to completely isolate the machine reaction from the building, or where soil conditions are poor, a foundation such as shown in Figure 2 must be utilized. The base of the vibration machine is rigidly attached to a foundation block whose mass is at least 15 times the table load rating. As discussed above, larger mass ratios are desirable. In order for this type of isolation system to work, the natural frequency of the spring-mass system must be no greater than $\frac{1}{2}$ the minimum machine frequency (usually 2.5 c.p.s.)

As an alternative to the pit installation shown, the entire foundation block may be located above the floor. In each case, if the foundation block is concrete, it should be at least 12 inches (.3m) thick and reinforced both top and bottom. The mass should then be spread out in order to achieve maximum stability. Concrete mass sizes (which meet the criteria established in Figure 1 above) are listed for various standard L.A.B. machine sizes.

Model #	Suggested Concrete Mass (L x W x Depth)
100V*	4 Ft. x 4Ft.x 1 Ft (1.2m x 1.2m x .3m)
250V*	5 Ft. x 5Ft.x 1 Ft (1.5m x 1.5m x .3m)
400V*	6 Ft. x 5 Ft. x 1 ½ Ft (1.8m x 1.6m x .5m)
2000V	10 Ft. x 10 Ft. x 2 Ft (3m x 3m x .6m)
3000V	10 Ft. x 10 Ft. x 2 Ft (3m x 3m x .6m)
4000V	12 Ft. x 10 Ft. x 3 Ft (3.6m x 3m x 1m)
6000V	16 Ft. x 12Ft. x 3 Ft (4.6m x 3.6m x 1m)
8000V	16 Ft. x 12Ft. x 4 Ft (4.8m x 3.7m x 1.2 m)

** These machine sizes rarely warrant a special foundation. In most cases it is best to just bolt the machine to a suitable factory floor. If it is found that an excessive amount of vibration energy is transmitted through the foundation, an above ground isolation mass can usually be constructed quickly and relatively inexpensively.*

In a number of cases it is more economical to use a solid steel slab of 6-10 inches thickness supported on an isolation system. When the cost of excavation, forms, concrete etc. and general inconvenience to the surrounding area of dust, dirt, and noise of a concrete installation is considered, a steel reaction block often appears very desirable.

In no case should a resilient material of any type be installed between the base of the machine and the foundation since this will defeat the purpose of the machine.

Anchor Bolts for Package Testers

The proper selection and installation of fasteners for package testers can make the difference between a satisfactory installation and a troublesome one. There are a number of acceptable concrete anchor bolt styles (Hilti, Star, etc.) which are available from most industrial supply houses. The number and size of bolts for a given package tester machine are listed as follows.

Model #	Quantity	Diameter	Overall Length (*Embedded Length)
100-V	8	3/8"	3 1/2" (2")
250-V	8	1/2"	4 3/4" (2 1/2")
400-V	8	5/8"	5" (2 3/4")
1250-V	10	3/4"	5 1/4" (3")
2000-V	10	3/4"	5 1/4" (3")
3000-V	10	3/4"	5 1/4" (3")
4000-V	10	7/8"	6" (4 1/4")
6000-V	12	1"	7" (6")
8000-V	12	1"	7" (6")

Transportation Simulators Specification Table

Model	100V	250V	400V	1250V	2000V	3000V	4000V	6000V	8000V
Payload Capacity	100 lbs (45 kg)	250 lbs (113 kg)	400 lbs (181 kg)	1250 lbs (567 kg)	2000 lbs (907 kg)	3000 lbs (1361 kg)	4000 lbs (1814 kg)	6000 lbs (2722 kg)	8000 lbs (3629 kg)
Standard Table Size	28" x 24" (710 x 610 mm)	42" x 36" (1070 x 910 mm)	48" x 48" (1220 x 1220 mm)	60" x 60" (1520 x 1520 mm)	60" x 60" (1520 x 1520 mm)	60" x 60" (1520 x 1520 mm)	60" x 60" (1520 x 1520 mm)	60" x 60" (1520 x 1520 mm)	60" x 60" (1520 x 1520 mm)
Table Height	14" (360 mm)	17" (430 mm)	19" (480 mm)	22" (560 mm)	22" (560 mm)	22" (560 mm)	23" (580 mm)	26" (660 mm)	28" (710 mm)
Max. Accel.	1.25 G								
Freq. Range	2 – 5 Hz (120 – 300 rpm)								
Displacement	1" Fixed (25 mm)								
Standard Vibration	Rotary		Rotary (Vertical Linear and Non-Synchronous available)						
Req. Fl. Space	28" x 32" (710 x 810 mm)	36" x 43" (910 x 109 mm)	48" x 49" (1220 x 1240 mm)	65" x 68" (1650 x 1720 mm)	66" x 67" (1680 x 1700 mm)	67" x 69" (1700 x 1750 mm)	67" x 69" (1700 x 1750 mm)	69" x 70" (1750 x 1780 mm)	71" x 73" (1800 x 1850 mm)
Approx. Shipping Weight (standard)	450 lbs (204 kg)	750 lbs (340 kg)	920 lbs (417 kg)	2000 lbs (907 kg)	2100 lbs (953 kg)	2200 lbs (998 kg)	3000 lbs (1361 kg)	4000 lbs (1814 kg)	5000 lbs (2268 kg)
Standard Utility Req.	110V/1Ø/60Hz		230V/1Ø/60Hz				460V/3Ø/60Hz		

L.A.B. Equipment, Inc.

Innovative Technology that Works!

Headquarters/Sales

1091 E. Green Street, Franklin Park, Illinois 60130, USA
P: 630.595.4288 ▪ F: 630.595.5196

Service/Manufacturing/Engineering

1326 New Seneca Turnpike, Skaneateles, New York 13152, USA
P: 315.685.5781 ▪ F: 315.685.8106

E-mail: sales@labequipment.com Web: www.labequipment.com