

UNIVERSAL FLOOR AND TILE TESTER

INTRODUCTION



With the constant evolution and introduction of new methods and materials in the construction industry, the need arose to expose flooring assemblies to a wider variety of tests.

Modern flooring systems and modern thinking demand modern machinery and testing methods. The Universal Floor and Tile Tester is a purpose built machine designed to duplicate the conditions inherent in the test specification ASTM C627-93 "Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems". This testing is currently performed on the "Robinson Tester", and apparatus of restricted capability. The "Robinson Tester" was built for a limited purpose and the construction of the machine confines its capabilities to small test sections of questionable integrity.

THE UNIVERSAL FLOOR AND TILE TESTER WAS CONCEIVED TO ADDRESS THE NEED FOR A WIDER VARIETY OF TESTS ON DIFFERENT FLOOR SYSTEMS.

Capable of exposing floors, structures and coverings to a wide variety of forces, the Universal Floor and Tile tester's functionality was expanded to include the following:

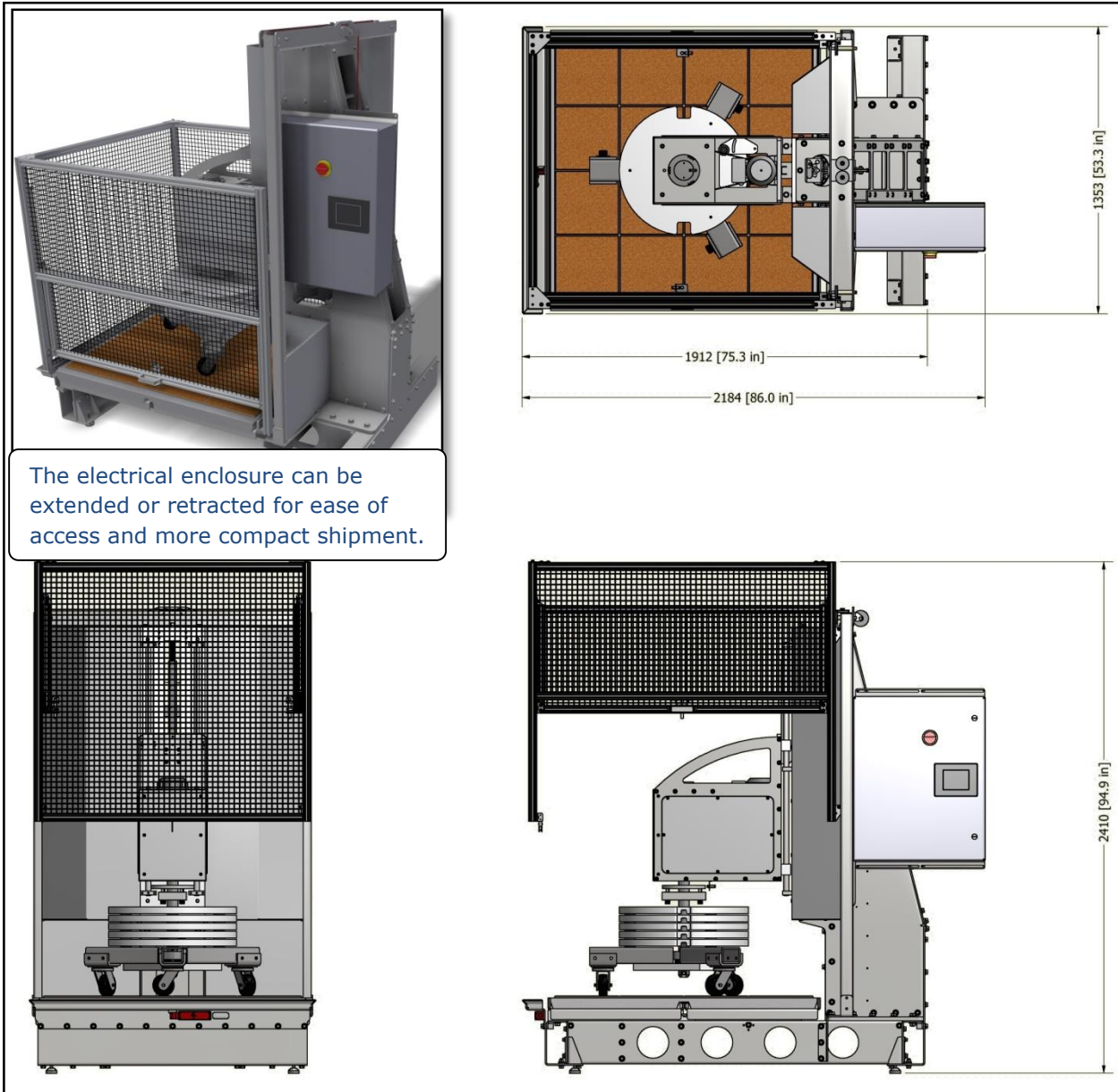
- Conducting a "Robinson Type" test on a full span floor with a thickness of up to 20".
- Deflection testing of joists and floor boards on a full span floor exposed to live loads.
- Crack isolation tests - the apparatus can create cracks in concrete of predefined characteristics. This is especially useful when observing the effect this may have on tile installations.

An added feature of the crack test is the capability to duplicate conditions of expansion and contraction cycles as they occur in nature by the effect of temperature changes.

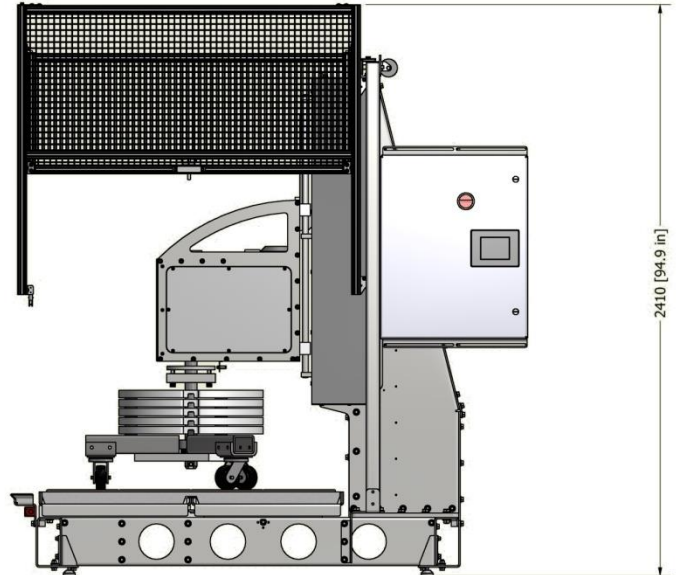
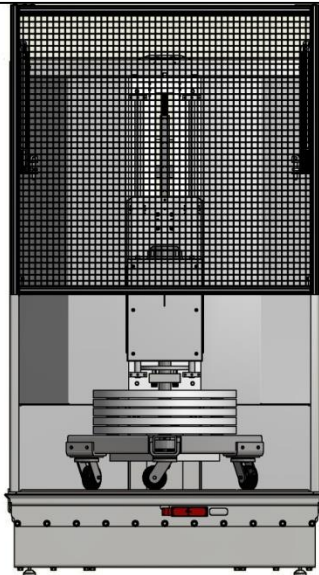
IN ADDITION TO CONDUCTING PREDEFINED TESTS FOR THE PURPOSE OF PRODUCT COMPARISONS, THE UNIVERSAL FLOOR AND TILE TESTER HAS THE ABILITY TO DUPLICATE A VARIETY OF CONDITIONS TO EVALUATE THE INTEGRITY OF A WIDE SPECTRUM OF FLOOR SYSTEMS.

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FOOTPRINT

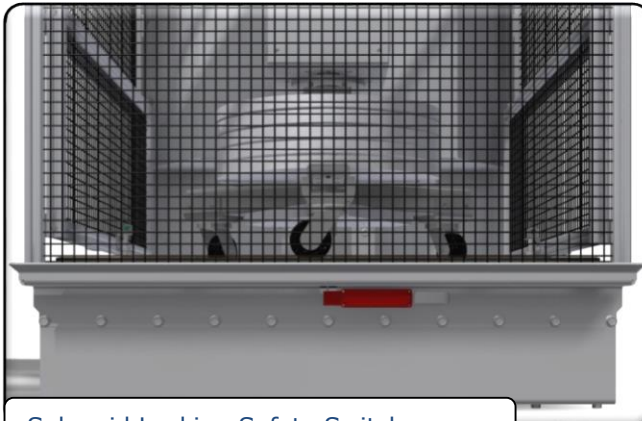


The electrical enclosure can be extended or retracted for ease of access and more compact shipment.



Once fully crated the Universal Floor and Tile Tester can ship within the confines of a standard overseas shipping container allowing for a secure and economical shipping option.

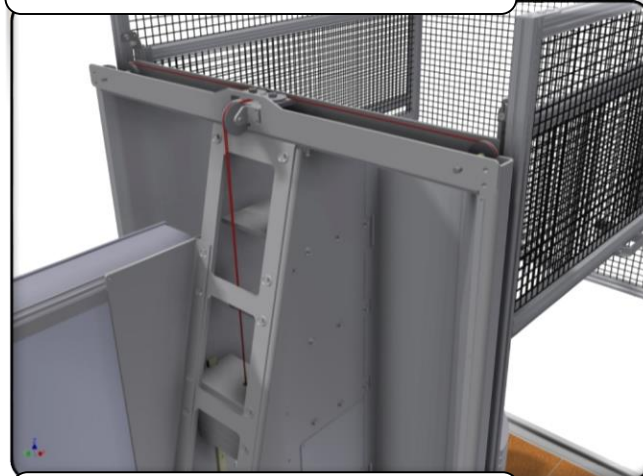
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Solenoid Locking Safety Switch



Side guard sensing - side guards can be unlocked for long-span testing.



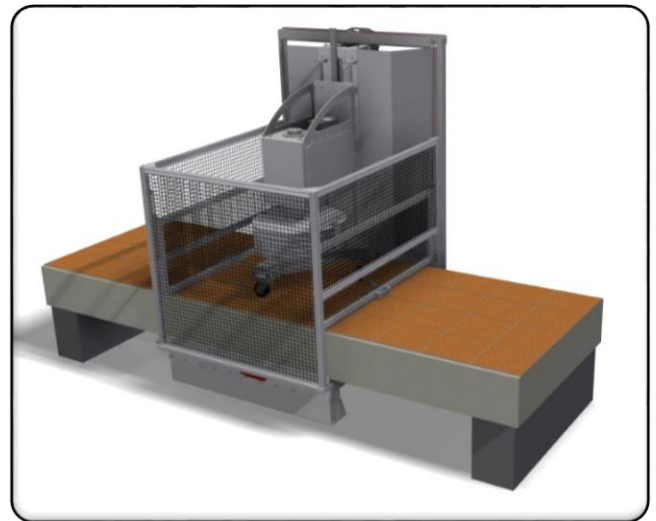
Counterbalanced guard for effortless movement.

SAFETY

An electrically integrated and PLC monitored solenoid locking safety switch ensures that the guard remains secure and locked during normal machine operation. The guard can be opened once machine motion has been arrested.

Side guards can be manually adjusted when the testing of a long-span floor is necessary. These guards have sensors to ensure the guard remains in close proximity to the floor during normal machine operation.

A fully counterbalanced guard allows for the opening and closing of the safety cage with minimal effort.



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TESTING FEATURES

"ROBINSON TYPE" TESTING

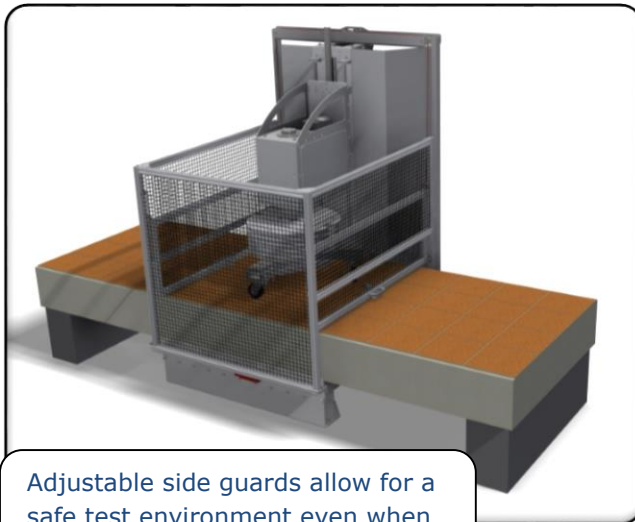
Duplicating conditions as defined by ASTM C627-93. By driving a series of casters of defined specification along a circular path, the test floor can be subjected to varying dynamic floor loads, in 150 lb increments (50 lb per wheel). Up to a total of 900 lb (409 kg).

SUSPENDED FLOOR TESTING

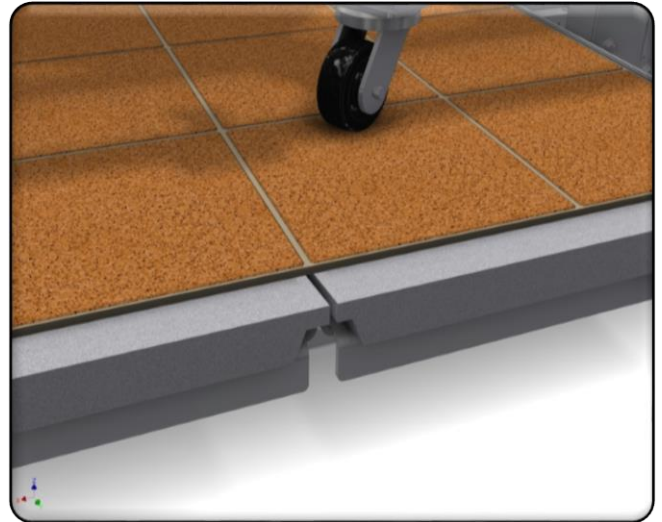
The design of the machine allows for the testing of suspended floors in order to observe the effect a "Robinson type" test may have on a more reality based environment by testing a full span floor.

CRACK TEST BED

The table of the machine is capable of duplicating a crack in the concrete base, along a predetermined area of defined size at a predetermined speed, in order to observe the effects this may have on the floor assembly. Due to the development of new products, such as anti fraction membranes used in the tile industry, the crack test can simulate the effect of a cracked concrete base on the tile installation.

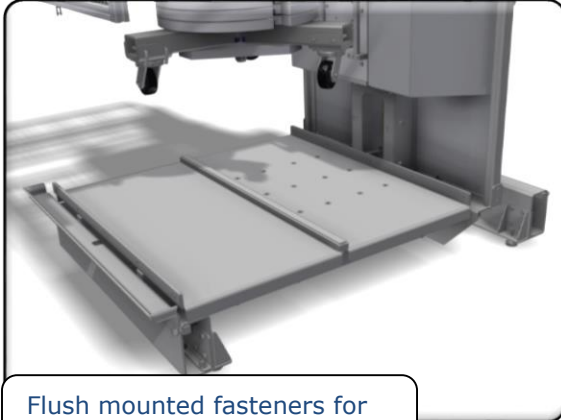


Adjustable side guards allow for a safe test environment even when testing long-span floors.



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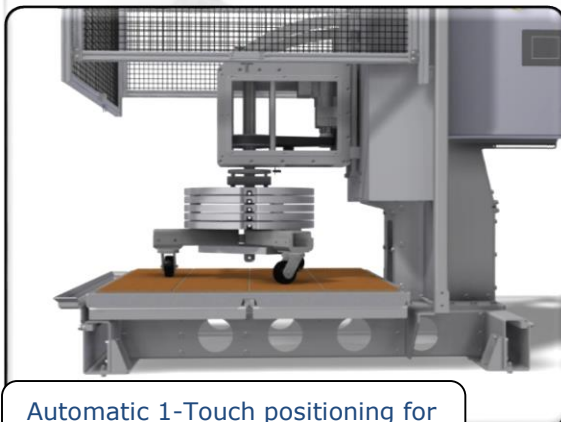
FEATURES



Flush mounted fasteners for pocket-less mold design.

Simplified Concrete Slab Design

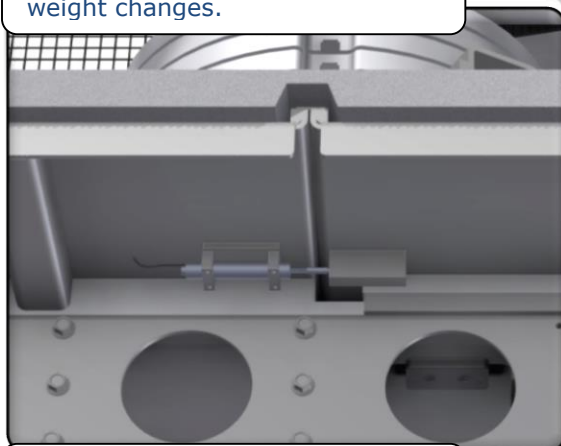
A smooth unobstructed table allows for a simplified concrete mold design.



Automatic 1-Touch positioning for weight changes.

Automatic Weight Change Positioning

To help ensure operator safety and convenience a system has been integrated into the Floor Tester to ease the setup and redistribution of weights. With a single operation the machine will automatically align the main shaft and position the lifting head in the correct aligned position to allow easy pin placement for weight selection.



Precise Table positioning

Direct Table Crack Position Measurement

A high precision absolute measurement device (LVDT) is installed in close proximity to where the crack will propagate to provide feedback of the absolute position and size of the separation.

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FEATURES

WEIGHT SELECTION FEATURE

Designed with operator ease in mind, the weight is always loaded while on the machine. Weight sections can be activated or deactivated by lifting or lowering the motorized drive shaft. The principle is somewhat similar to weight selection in fitness equipment. The design of the weights ensures equal weight distribution over the 3 casters.

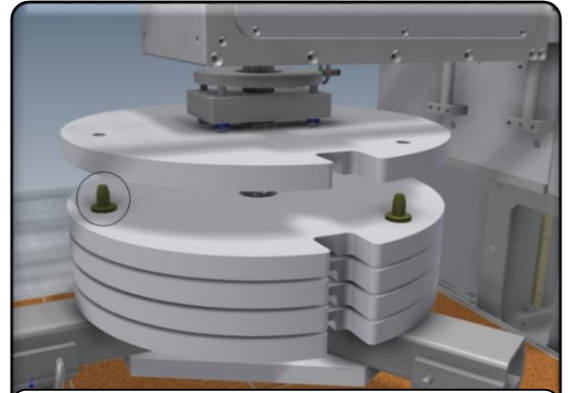
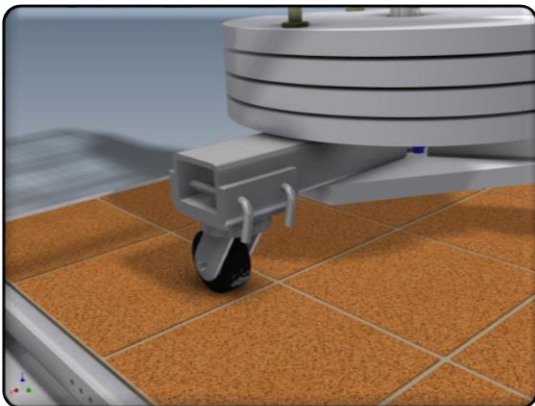
WEIGHT LOCATORS

The WEIGHT LOCATORS ensure correct positioning of the weights in relation to each other and the drive shaft.

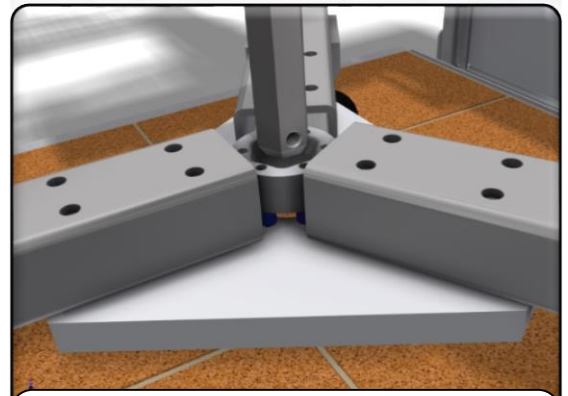
Located directly above the caster arms, the function of the WEIGHT TRANSFER BOSS is to transfer the weight in equal portions to the carriage so that the total weight gets distributed in equal portions to each caster.

SPHERICAL CONTACT COUPLING

The SPHERICAL CONTACT COUPLING used between the DRIVE SHAFT and CARRIAGE ensures that constant wheel pressure is maintained on the floor.



Weight locators ensure a uniformly distributed load on all 3 casters.



The articulating coupling has 6 points of suspension to allow for angular misalignment due to uneven floors.

WHEEL CHANGE SYSTEM

The use of a wheel adapter allows for the quick removal and installation of the various wheel types used for testing. A secured Hitch pin holds the adapter in place to allow for a quick exchange without the use of tools.

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FEATURES



Easy accessibility with guarding, casters and weights raised.



Machine shown in fully closed operating position.

CONTROL

CONTROL INTERFACE

Driven by a PLC, the operator can select from a range of tests to be performed. The required data can simply be inserted for that particular test. Items that can be operator selectable are:

- Number of revolutions for the "Robinson Type" test.
- Size of crack in case of crack test.
- Number of cycles for the accelerating aging. (Repetitive opening and closing of crack).

The screen will constantly display the current status of the test in Progress:

- Time test is in progress.
- Number of revolutions completed.
- Size of crack.
- Number of cycles completed.

The test can be paused and restarted at any time. The current data will be retained, even if the power to the machine is disrupted. The operator can reset the data to zero.



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SPECIFICATIONS

Power Requirements

VOLTAGE - 240V

PHASE - SINGLE PHASE

AMPERAGE - 20 A

Dimensional

WIDTH - 1,35 m (53 inches) - Does not include space to accommodate long-span floors.

DEPTH - 2,18 m (86 inches)

HEIGHT - 2,41 m (95 inches) - With guard opened.

WEIGHT - Approximately 1500 kg (3300 lbs)

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