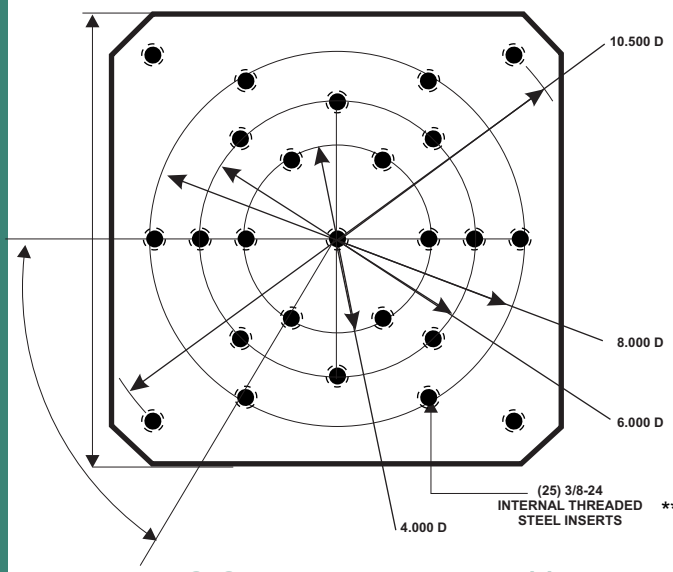
AVEX

RMS SM-105-MP SHOCK TEST MACHINE

Carriage Mounting Hole Pattern SM-105-MP



US-Standard Version **

Specifications

Dimensions

Base (Floor area required)	*(24 in. x 24 in.)* 610 mm x 610 mm
* Height (Floor to top of control panel)	*(43 in.)* 1092 mm
(Floor to carriage, down position)	*(49 in.)* 1245 mm
(Floor to top of safety shield)	*(62 in.)* 1575 mm

Weight

Installed Weight	*(approx. 1395 lb.)* 632,8 kg
Shipping Weight	*(approx. 1655 lb.)* 751,0 kg

Specimen

Weight	maximum *(50 lb.)* 22,7 kg
Height	Not limited by machine
Size	Not limited by machine

Center of gravity of specimen must be within *(1 in.)* 25,4 mm of center of carriage

Performance

Stroke	maximum *(17 in.)* 432 mm
Terminal Velocity	*(330 in.)* 8382 mm per sec. (no load) *(260 in.)* 6604 mm per sec. (*(30 lb.)* 13,6 kg specimen)
Cycling Rate	up to 8 cycles per minute

Pulse Generator

Elastic Pads	Half Sine
Lead Pellets	Terminal Peak Sawtooth
Special Generators	Square Wave

Utilities

Power	230 V, 50 Hz, Single Phase
Air Pressure	100-125 psi Filtered / 7 - 9 bar
Air Requirements, Maximum	4 S.C.F.M / 100 l/min

Microprocessor

Program	1 to 10 Test

Conditions can be programmed with repetition of up to 100 Drop Cycles.

* Airmount Inflated

** other versions available on request

Subject to change without prior notice

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RMS SM-105-MP SHOCK TEST MACHINE

Description

The **SM-105-MP** is a microprocessor controlled, pneumatically powered shock machine for accurate, repeatable laboratory and production impact testing of **specimens** up to *(50 pounds)* **22,7 kg**. With appropriate pulse generators, it will produce half sine, sawtooth, and square wave pulse shapes to meet exacting military and industrial specifications or individual test requirements. Generated waveforms will comply with typical military specifications, such as MIL-STD-202, MIL-STD-810, and MIL-STD-750. The SM-105-MP is completely portable and requires no special floor preparation or bolting. The only locational requirements are availability of compressed air, *(115 V/ 60 Hz - US Standard)* or 230 V/ 50 Hz (European Standard) power, and a floor that is reasonably level. The floor must support the weight of the machine plus the test specimen and provide a nominal safety factor to accommodate minimal shock loads. The machine may be moved with a fork lift truck.

Base

The base assembly functions as an inertial mass and reacts with the falling carriage to generate a shock pulse. The assembly is made of high-strength reinforced concrete, encased in a steel jacket, and is supported on tour air mounts. It supports a carriage and guide rod and contains a pneumatic cylinder assembly an electronic pneumatic control system, and a control panel. The machine is shipped completely assembled.

Air Mount Supports

The pneumatic supports, built into the base of the machine, are inflated by the machine's compressed air supply and effectively isolate impact forces, reducing their transmission to the floor. Air pressure and inflation are controlled by a regulator and pressure gauge and may be adjusted to suit specific bad and test conditions.

Shock Pulse Generators

A variety of elastomer pads, lead pellet molds, and pneumatic pistons for generating halt sine, sawtooth, and square wave pulse shapes are available for this machine. The pads are easily changed to meet a wide range of pulse requirements. Elastomer pads have proved to be the most economical and versatile generators for half sine wave forms. Molds are supplied for casting lead pellets to generate terminal peak sawtooth pulse shapes.

Carriage

The carriage is a conical shaped aluminum casting with mounting surfaces machined to dose tolerances. It has been designed for optimum strength-to-damping ratio. Steel inserts provide for attaching specimens or fixtures to the carriage, as shown on the back cover.

Maintenance

RMS / AVEX pneumatic machines are designed and constructed for long Service life and minimum maintenance. The pneumatic, electronic, and electrical systems are arranged for easy access by maintenance personnel or technicians.

Controls

The machine's pneumatic components are controlled by a self-contained microprocessor. A key pad, conveniently located on the top control panel, programs the microprocessor for charge pressure, drop height, braking, cycle count, and instrumentation trigger. Electrical power is provided by the top control panel key lock switch. Depending on the number of cycles programmed, the microprocessor will direct the machine to initiate one or multiple drop cycles at a rate of up to 8 cycles per minute. A valve plate supporting the assembly of valves, pneumatic and electrical connections, and microprocessor is mounted on the machine to provide easy access for maintenance and adjustments.

Operation

The machine is powered by compressed air with pressure ranging from *(100 to 125 psi)* 7 - 9 bar. The following describes a typical drop cycle: Compressed air is introduced to the lower side of the piston, raising the carriage to a selected height as determined by microprocessor programming. Once the height is reached, the holding brake is applied. The lift air is dumped and compressed air is introduced to the upper side of the piston to a desired "charge" pressure, which is measured by a transducer. As soon as the desired charge pressure reaches the proper amount, the microprocessor actuates the valve which releases the pressure on the holding brake. The carriage is then driven downward by the charge pressure, impacting on a pulse generator mounted on the anvil. Upon impact, the microprocessor directs the brake to be actuated, holding the carriage in a rebound position and preventing secondary impact. At the same time, the microprocessor will trigger the sweep of an oscilloscope or other instrumentation for recording the shock pulse.

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