



James Windsor Pin System

A unique instrument for measuring the strength of new or existing construction materials in situ utilizing the established principle of resistance to penetration.

Features and Benefits

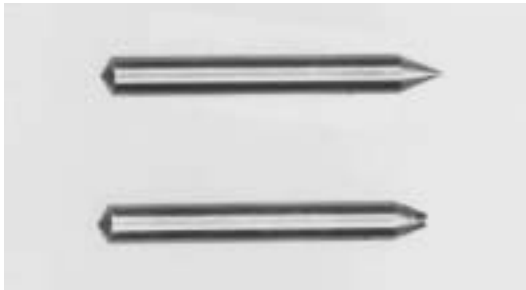
- Portable and completely self-contained.
- Safe to use — non explosive.
- Economical — steel pin can be reused.
- Non destructive.
- Removable chuck facilitates testing of mortar strength in masonry.
- Conforms to ASTM C-803
- Test new concrete products and structures for early strength.
- Evaluate the in situ strength in existing structures, e.g., after suspected fire damage.
- Test strength of block, brick, and mortar joints within an existing structure, e.g., load bearing walls.
- Test polymer concrete and patching compound.
- Quality control of precast elements such as block, brick slabs and pipe.

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Pin Penetration Resistance Test Procedure

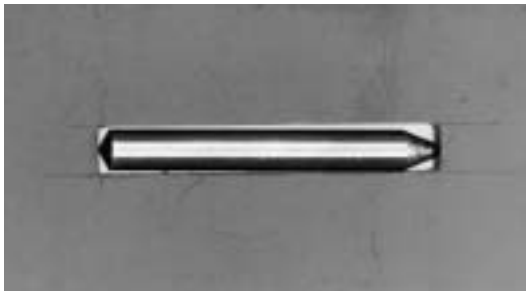
Measure the Pin after each test if the pin is too blunt or too short the strength can be considerably overstated.

New and used pins



Actual new pin length: 1.2 inches.

Go/No-Go Gage



Used steel pin passing through the Go/No-Go gage.



Firing

Windsor Pin with chuck on smooth surface.



Cleaning

Air blower cleaning out pin hole before measuring.



Measuring

Needle micrometer measuring depth of pin penetration in mortar joint.



**Pin Driver
Without Chuck**

With the chuck removed the pin driver is capable of accurately testing mortar joints. By inserting the V-barrel into the mortar joint the pin will directly penetrate at the center of the joint.

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Technical Specifications



Windsor Pin System



Needle Micrometer

Sales Numbers & Specifications

W-P-2000	Windsor Pin System
W-P-1040	Box of 40 pins with gauge for Windsor Pin system
Weight	18 lbs. (8.1 Kg)
Dimensions	17 x 12 x 6 inches (43 x 30 x 15 cm)

Technical

The principle of the Windsor Pin system is that a spring drives a steel pin into the surface of the material. Since the depth of penetration is inversely proportional to compressive strength, the device provides a fast and safe way of determining the in situ strength of material.

The spring is loaded by tightening the retraction nut until the trigger mechanism latch closes to hold the spring in place. The stored potential energy is 91 lbs. in (108 NM). With the spring loaded it is compressed to a distance of 0.8 inches. Thus once the trigger is pulled there is enough force to test compressive strength of concrete to a maximum of 5300 PSI (36.9 MPA). The pin is made of a special high strength steel specifically for building material penetration and can be used about seven times. It should be replaced if the length is reduced sufficiently for it to pass a go/no-go gauge. Not doing so will severely impact results.

With the chuck on both the micrometer and pin driver, flat surfaces can be easily and accurately measured. Simply make sure the chuck rests against the surface and pull the trigger. After the pin has penetrated the surface, clean the hole with the provided blower, measure depth of penetration and compare to the previously prepared chart for the compressive strength of your material. Charts for typical mortar and concrete is provided.

The recommended practice is to take seven readings discarding the two readings farthest from the mean. By doing this the possibilities of striking a flaw or near surface piece of hard aggregate and using the resulting penetration to calculate strength are sufficiently reduced. Grinding the surface flat before testing produces more consistent results.

With the chuck removed the pin driver is capable of accurately testing mortar joints. By inserting the V-barrel into the mortar joint the pin will directly penetrate at the center of the joint. By following a similar procedure as above the compressive strength of the mortar joint can be accurately and safely tested. A similar v-shape for the micrometer facilitates measurement.

Calibration

The spring of this instrument has been selected for its ability to undergo many compression cycles with no loss of energy. However, it is recommended that the instrument be sent back to James Instruments (or authorized distributor) for cleaning, recalibration, and replacement of the brass loading nut, at least once every year.

NDT JAMES INSTRUMENTS INC.
NON DESTRUCTIVE TESTING SYSTEMS