

SpeedPod

Durability Certificate



1 GENERAL

SpeedPod is a measurement gauge with inertial sensor technology designed to measure multiple characteristics of a door system.

2 CERTIFICATION

The SpeedPod door velocity gauge is designed to be used in an industrial environment. The following set of tests ensure the robustness of the gauge and its ability to continue providing accurate measurements.

- **Drop Resistance**
Device maintains functionality when dropped from **6ft**.
- **Shatter Resistance**
Glass and screen assembly do not shatter under a load of **300N**.
- **Scratch Resistance**
Glass and screen assembly are **scratch resistant** to ensure long term transparency.
- **Mounting Force**
Suction cup system holds the SpeedPod in place while withstanding a pulling force of **120N**.
- **Mounting Duration**
Suction cup system remains attached for over **3h**.
- **Mounting Durability**
Suction cup system's capability for repetitive use for over **100,000 cycles**.

3 PROCEDURE A: Drop Resistance

3.1 Component

The external housing is designed to resist and absorb impacts from accidental drops, ensuring the maximum lifetime of the device.

3.2 Setup

A fully assembled and functional SpeedPod is dropped from a height of 6ft. It is generally accepted that normal working heights are typically well below 6ft. The landing surface is a clean, bare, solid concrete floor. As the unit can be dropped in any orientation, the test is repeated with each of the 6 sides facing toward the ground.

3.3 Evaluation

The unit is examined as follows :

- **External:** Visual inspection for surface damage (cracks, chips)
- **Internal:** Visual inspection of the assembly (electronics, connections, screws)
- **Functionality:** The unit is put onto a standard verification fixture to ensure operation and accuracy of the measurement values.

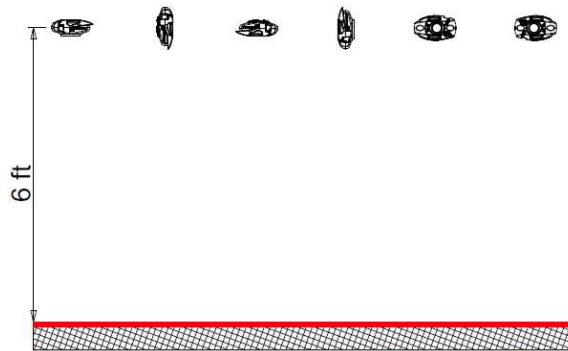


Figure 1 : SpeedPod Drop Test

3.4 Key Result

The device never incurred damage that would inhibit operation or degrade measurement accuracy beyond specifications.

4 PROCEDURE B: Shatter Resistance

4.1 Component

The high contrast e-ink screen that displays measurement results is protected by a mineral glass crystal which protects the screen from dust, scratches, dirt, and damage. This test determines the crystal's resistance to pressure applied by the user.

4.2 Setup

A domed mineral glass crystal (3.0mm edge thickness, 4.6mm center thickness), normally covering the SpeedPod e-Ink display, is placed into a SpeedPod housing. A force of 300N is applied to the center of the glass with a round pressure point, 10mm in diameter. The force is gradually applied over 5 seconds and sustained for another 10 seconds.

4.3 Evaluation

The glass may not shatter or show any further deformation, ensuring that this component does not present any hazards to the user during operation.

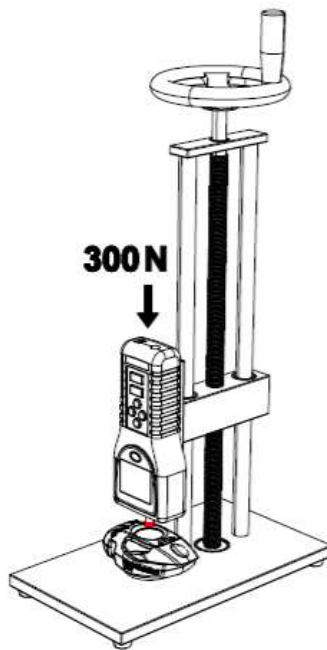


Figure 2 : SpeedPod Crystal Shatter Resistance Setup

4.4 Key Result

The mineral glass crystal did not break or shatter under the predefined load of 300N. Even under a force in excess of 500N, the glass and assembly remain intact.

5 PROCEDURE C: Scratch Resistance

5.1 Component

The high contrast e-ink screen that displays measurement results is protected by a mineral glass crystal which protects the screen from dust, scratches, dirt, and damage. Since the crystal is exposed to foreign objects, it needs to be scratch resistant to ensure long-term, clear transparency.

5.2 Setup

A hardened sharp point is used repeatedly against the surface of the glass in attempts to generate scratches. The point is made of hardened steel and has a radius of 0.1mm. It is applied to the surface with a force of 200N and moved while remaining in contact with the crystal for 10mm. This is envisioned to represent industrial and personal objects such as tools and keys that are composed of hard materials and contain sharp edges.

5.3 Evaluation

From visual inspection, the glass surface may not show any traces of scratches or abrasions, generally considered as a surface imperfection of more than 0.2mm.

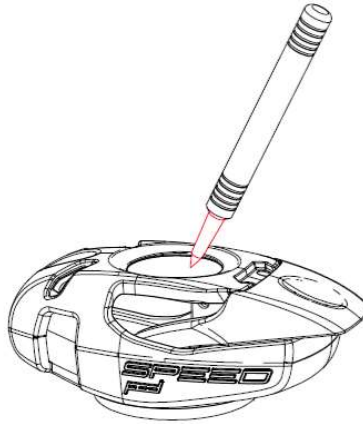


Figure 3 : SpeedPod Crystal Scratch Resistance Setup

5.4 Key Result

The mineral glass crystal did not show any damage or obstruct viewing of the e-ink screen.

6 PROCEDURE D: Holding Force

6.1 Component

SpeedPod is equipped with a patented suction cup system. The system is designed to have instant installation on a clean surface and hold the gauge in place during the measurement process.

6.2 Setup

The suction cup is mounted to a smooth, clean, scratch-free surface. A pulling force is applied to the suction cup in an attempt to remove the cup from the mounted surface. The pulling force is applied perpendicular to the flat surface.

6.3 Evaluation:

The suction cup must be able to withstand up to 120N of pulling force without disengaging from the surface.

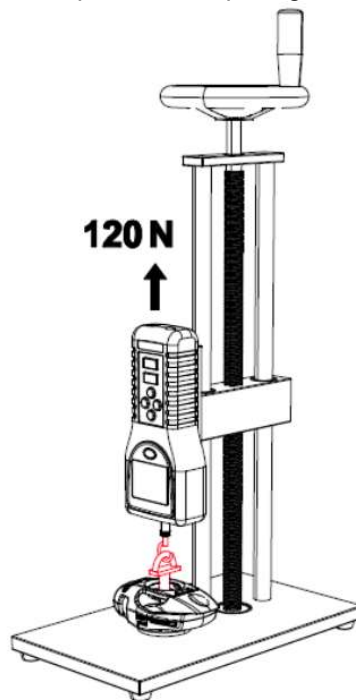


Figure 4 : SpeedPod Suction Cup Holding Force Setup

6.4 Key Result

The suction cup maintained attachment to the surface when exposed to a pull force of 120N. The system shows signs of losing attachment when exposed to a pull force in excess of 140N.

7 PROCEDURE E: Mounting Duration

7.1 Component

SpeedPod is equipped with a patented suction cup system designed for instant installation on a clean surface, holding the gauge securely in place during the measurement process.

7.2 Setup

A SpeedPod device was attached to a clean vertical sheet of polycarbonate using the suction cup. The device was monitored during normal business hours and left overnight. This test was conducted at standard room temperature.

7.3 Evaluation

The SpeedPod suction system must not lose attachment to the polycarbonate sheet for at least 3 hours .

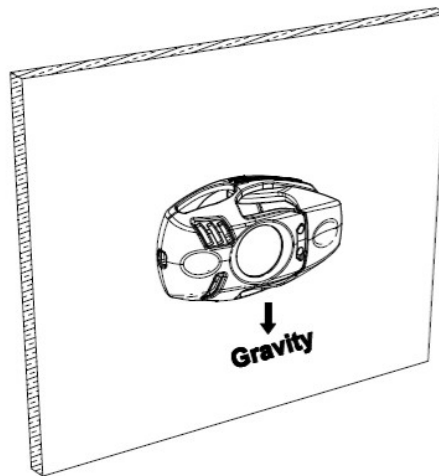


Figure 5 : SpeedPod Suction Cup Holding Force Setup

7.4 Key Result

The device was able to hold suction for over 3 hours. With optimal surface conditions, the system has successfully maintained continuous attachment for over 24 hours.

8 PROCEDURE F: Suction Cup Durability

8.1 Component

SpeedPod is equipped with a patented suction cup system designed for instant installation on a clean surface, holding the gauge securely in place during the measurement process.

8.2 Setup

A suction cup and mounting hardware were set up to be operated by a linear actuator repeatedly until a part failure was observed. Extending and retracting the SpeedPod lever will activate and deactivate the suction cup system. This actuation is representative of the mounting and dismounting manual operations.

8.3 Evaluation

The suction cup must pass 100,000 cycles (suction engaged and disengaged) before critical failure.

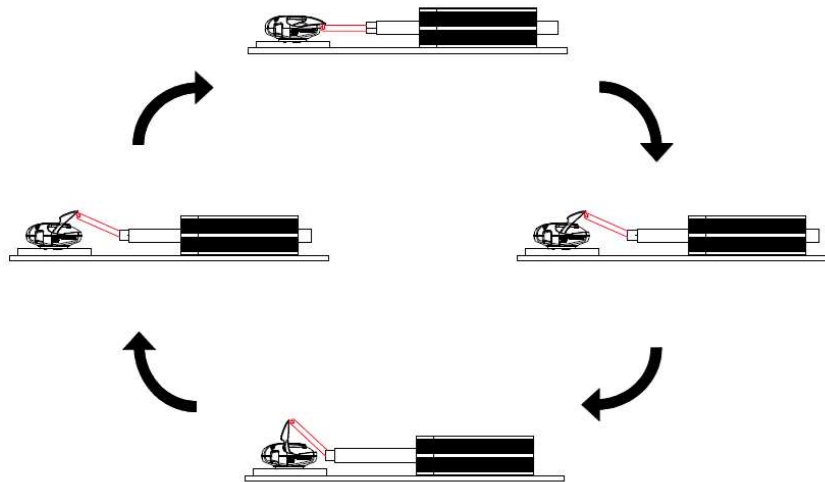


Figure 6 : SpeedPod Suction Durability Rig

8.4 Key Result

Suction cup passed 100,000 cycles without failure and no obvious signs of degradation.

9 Disclaimer

As the numerous tests illustrate, the device has been designed for robustness and reliability. While the tests are chosen to simulate a real-world environment, it is virtually impossible to cover all potential use cases. To accommodate any unfortunate device failure, EZMetrology has established backup procedures and tools to minimize any impact on daily operations

9.1 Warranty

Each device is covered by a 1-year factory warranty. In case of malfunction or issue, please contact our support staff at support@ezmetrology.com. Our experts will troubleshoot the reported issue and will propose the most efficient way forward to resolve any matter.

9.2 Repair Kits

Repair kits are available for the suction cup system and the protective cover. Both replacement kits can be installed by the end user without the need for returning the device to a support location. In case the device is used in an industrial environment where it will potentially be exposed to frequent drops, it is recommended to have spare kits readily available.

9.3 SpeedBay - Verification

While the system is designed for industrial use, it will certainly benefit from periodic verification. EZMetrology therefore recommends SpeedBay, a verification station to confirm the validity of measurements and ensure the device's readings are consistent over an extended period of time. SpeedBay provides an additional level of verification to the standard annual calibration that certifies the device to international standards.

9.4 RMA Procedure

In the unfortunate event of a malfunction where our support staff concludes that a device needs to be returned to the factory, we will provide instructions to ensure return of the device for prompt repair. This Return Material Authorization (RMA) procedure will provide all instructions and paperwork for fast processing.