

## Arizona Dust test for automotive components in dusty environments

The **Arizona Dust test** is a standardised test that is essential for verifying the **resistance of electronic, electrical and mechanical devices** to the penetration of fine dust in critical environments. It is an essential test for ensuring the **safety and reliability of components**, particularly in the automotive sector, where operating conditions may involve exposure to sand, fine dust and abrasives. INTEK performs this test in accordance with ISO 20653:2023, guaranteeing reliable and certifiable results for **automotive and industrial applications**.

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## What is the Arizona Test Dust (ATD) used for?

The **Arizona Test Dust (ATD)** is designed to test the **resistance of electronic, electrical and mechanical devices** to the penetration of fine dust, often found in harsh working environments or outdoor settings. It is a fundamental test for verifying the **protection against the penetration of fine and abrasive dust** in electrical, electronic and mechanical devices intended for use in dusty environments.

In particular, this test is used to:

- **Verify compliance with IP5KX and IP6KX protection ratings**, as required by regulations.
- **Simulate extreme environmental scenarios**, such as deserts, dirt roads, engine compartments subject to contamination, industrial environments with fine dust, construction sites, electrical cabins and outdoor electronic devices.
- **Assess the effectiveness of protection** against the infiltration of fine particles, wear due to mechanical abrasion and obstruction of critical openings such as ventilation systems, joints or optical components.
- Verify the tightness of enclosures, connectors, sensors, actuators and electronic units against the penetration of fine particulates, mechanical abrasion and the occlusive effect on ventilation, optics or joints.

This test is therefore crucial for all devices that must maintain reliable performance and structural integrity even in adverse environmental conditions.

## How to perform the Arizona Dust test (ISO 20653:2023)

The test procedure follows the requirements defined by **ISO 20653:2023**, assessing the actual **sealing of the device being tested**.

In the INTEK laboratory, the test consists of the following steps:

- The sample is exposed to a vertical air flow laden with **Arizona Test Dust A2 Fine**, compliant with **ISO 12103-1**;
- The test cycle involves 20 consecutive exposures to dust, with 15-minute breaks between each exposure.

At the end of the test, a visual and functional assessment of the sample is carried out to verify:

- the **absence of visible dust infiltration** inside the enclosure;
- the full operability of the device or its components.

This methodology provides reliable, repeatable and comparable results between different devices, representing a **benchmark for the approval of components** intended for hostile environments.



## INTEK equipment for Arizona Dust testing

The INTEK laboratory is equipped with a **certified Arizona Dust test chamber** capable of simulating severe environmental conditions.

The main features include the ability to **power the device** during testing and to perform tests at **temperatures ranging from ambient to 80°C**, as required by some automotive manufacturers' specifications.

In the IP testing sector, INTEK also specialises in performing **Environmental and Climatic Tests**.

## Why rely on INTEK for IP5KX/IP6KX protection testing

With over 30 years of experience in **environmental and mechanical testing for industry**, as an independent and accredited laboratory, INTEK is the ideal partner for testing the reliability and resistance of devices in real-world conditions, such as **IP5KX/IP6KX testing**. INTEK offers customisable testing to specifications, **qualified technical support** during all stages of testing, and rapid execution and release of **test reports**.



## Request information for Arizona Dust test for automotive components

INTEK is an independent test and measurement laboratory, an Italian excellence in test and measurement services. **Request information online about Arizona Dust test for automotive components:**

<https://www.intek.it/en/arizona-dust-test-for-automotive-components-in-dusty-environments>