

BERGEN - 15/04/2009
Ref. No.: GexCon-08-F44124-RA-4
Rev.: 01

cmr Gexcon

TEST REPORT

Testing of the physical resistance of the MBX Bristle Blaster when dropped from a height of 1 meter according to EN 13463-1:2009

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Classification

Confidential (F)

Title

Testing of the physical resistance of the MBX Bristle Blaster when dropped from a height of 1 meter according to EN 13463-1:2009.

Extract

The physical resistance of the MBX Bristle Blaster when dropped from a height of 1 meter has been tested at GexCon's test laboratory. The objective of the tests was to study whether the tool will be damaged when accidentally dropped and yield a reduction in explosion safety. This test has to be performed for handheld tools when performing an ATEX conformity evaluation according to the European standard EN 13463-1:2009.

Project Info

Client

Monti Werkzeuge GmbH

Clients ref.

Martin Jennes

GexCon Project No.

44124

GexCon Project Name

Drop test for handheld tools.

Revision

Rev.	Date	Author	Checked by	Approved by	Reason for revision
00	09.03.2009	Matthijs van Wingerden	Kees van Wingerden	Brian A. Wilkins	Issued to client as draft test report for comments
01	15.04.2009	Matthijs van Wingerden	Kees van Wingerden	Brian A. Wilkins	Issued to client as final test report

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1 Background

The physical resistance of the MBX Bristle Blaster when dropped from a height of 1 meter has been tested at GexCon's test laboratory. The objective of the tests was to study whether the tool will be damaged when accidentally dropped and yield a reduction in explosion safety. This test has to be performed for handheld tools when performing an ATEX conformity evaluation according to the European standard EN 13463-1:2009 [1].

This test report describes the results from the laboratory tests that have been performed.

2 Test set-up

The MBX Bristle Blaster was dropped four times from a height of 1 meter on to a horizontal concrete surface. The tool was hung up on a stand with a wire. The wire was gently pushed off the stand, resulting in the tool falling on to the ground. For each test the tool was hung up in different positions to allow for different impact points.

Since parts of the tool consist of plastic material, the tool was tested at a temperature equal to the lower ambient temperature (-20 °C) for which the standard EN 13463-1:2009 and ATEX-directive are valid, see Figure 2.1. Plastic is less resistant to impact at lower temperatures.



Figure 2.1 Photograph showing the tool hanging in the stand prior to testing. The tool has a temperature of -21 °C.

3 Results and Discussion

The tool was dropped four times. Figure 3.1 shows the different impact positions of the tool at impact on to the ground.



Figure 3.1 Photographs of the tool at impact time for all four tests.

After the second test, the handle of the tool broke, see Figure 3.2. No further visible damage was seen on the tool and the tool operated normally after the tests. The damage done to the tool was considered to not yield a reduction in explosion safety.



Figure 3.2 *Picture showing the damage on the tool after the second drop.*

4 Conclusion

The physical resistance of the MBX Bristle Blaster when dropped from a height of 1 meter has been tested at GexCon's test laboratory.

The only visible damage on the tool after the tests was a broken handle. The tool operated normally after the tests. The damage done to the tool was considered to not yield a reduction in explosion safety.

The tests were performed with the temperature of the tool being equal to the lower ambient temperature for which the ATEX-directive is valid. This represents a worst case for the tool, since the plastic construction material becomes more brittle at such temperatures.

5 References

- [1] European Standard: EN 13463-1, "Non-electrical equipment for potentially explosive atmospheres – Part 1 – Basic method and requirements", January 2009.
- [2] European Standard: EN 1127-1, "Explosive atmospheres – Explosion prevention and protection – Part 1 – Basic concepts and methodology", November 2007.