

[Certified translation from Polish]

[round blue seal of a certified translator of the German language, mgr Natalia Bucholska, TP/3135/05]

[The document is a translation of certified translation from German to Polish]

[Translator footnotes are given in square brackets]

Materials Research Institute

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70511 Stuttgart

[Printing from the molded paper header reading: Materialprüfungsanstalt Institute for Materials

Research at the Universität Stuttgart (University of Stuttgart)

Deutsche Akkreditierungsstelle

German Accreditation Centre

D-PL-11027-04-00

Material test report

Ball impact resistance test

Report no.:

Principal:

903 8708 000/Sgm

LUG Light Factory Sp. z o.o.

Gorzowska 11

65-127 Zielona Góra Polska

Order no. (customer):

Order No. (MPA):

Subject of the test:

Test specification:

903 8708 000

Cruiser Arena LED lamp

[1] DIN 18032-3:2018-11

Sports halls - Sports halls and

multipurpose objects - Part 3: .

Ball impact resistance test

[2] DIN EN 13964:2014-08

Suspended ceilings - Requirements and test methods

Date of receipt

of the tested subject:

Test date:

Report date:

29.06.2020

03.07.2020

09.07.2020

Page 1 of	3
Annexes:	2
Total number of pages:	5
Number of copies.	2

The test results refer to the test subjects only.

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The Materials Research Institute at the University of Stuttgart is a testing laboratory accredited by DAkkS Deutsche Akkreditierungsstelle GmbH according to DIN EN ISO/IEC 17025.

The accreditation is valid for test procedures listed in the documentation.

1. **Content of the order**

By letter of 24.06.2020, you commissioned the MPA Universitat Stuttgart [Materials Research Institute at the University of Stuttgart] to test the built-in element for ball impact resistance according to the German industrial standard DIN 18032-3 [1] or DIN EN 13964 [2], Annex D.

2. **Tests performed**

2.1 Description of the built-in element

The tested item to be built in is a ceiling lamp:

"Cruiser Arena LED"

The tested 675 mm x 398 mm x 160 mm Cruiser Arena LED ceiling lamp was composed of the following:

- | | |
|------------------------------------|--|
| - Housing: | 3-6.5 mm thick aluminium die casting |
| - Cover: | flat glass (thermally tempered), 5 mm thick aluminium, 1 |
| - Cover frame: | mm thick |
| - Fixing for the frame/hosing: | 6 M4x16 mm screws |
| - Mounting bracket: | aluminum, 2 mm thick |
| - Fixing for the bracket / housing | in a way that is rotated with 2 M8x30mm screws. |

2.2 Test process

The test was carried out in accordance with DIN 18032-3 [1] or DIN EN 13964 [2], Annex D. (accredited test procedures according to DIN EN ISO / IEC 17025; see DAkS certificate D-PL-11027-04-07).

The test was performed at 22° C in the laboratory

[The footnote includes contact details of the Institute for Materials Research at the University of Stuttgart]

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3. Test results

Table 1: Results of the "Cruiser Arena LED" built-in element test for ball impact resistance according to [1]

Ball	Impact angle in degrees	Number of impacts	Changes in the tested element to be built in
Handball	90	12	None
Handball	60	12	
Handball	60	12	

The tested item went through the tests without damage.

Therefore, the component must be assessed as ball-proof according to DIN 18032-3 [1] for the application area of the ceiling and as impact-resistant according to DIN EN 13964 [2], Annex D, for Class 1A (impact velocity 16.5 ± 0.8 m/s).

The test report is valid indefinitely provided that no changes are made to the components to be built in and placed on the market in relation to the tested component. Any change in the item in relation to the tested variant shall result in the expiry of the validity of the test report and will require a new test to be performed on the item.

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Schulz
Clerk

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Materialprüfungsanstalt
Universität Stuttgart]

[Illegible signature]
dr. inż. Stegmaier, Head of Building
Covers, Energy Efficiency, Floor
Structures

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Institute for Materials
Research, University of
Stuttgart

Report no.: 903 8708 000/Sgm
Annex 1

[Image of the item in question - ceiling lamp]

Photo 1. [p. original]

General view: visible page: "Cruiser Arena LED"

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Universität Stuttgart]

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Materials Research Institute Report no. 903 8708 000/Sgm
University of Stuttgart Annex 2

[Image of the item in question - ceiling lamp]

Photo 2. [p. original]

Detail: Cruiser Arena LED mounting bracket

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[Each page bears contact details to certified translator of the German language, mgr Natalia Bucholska, ul. Urwista 5, PL-61-015 Poznań, mobile: +18 606824973, email: natasza@poczta.onet.pl]

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I, the undersigned Anna Adamkiewicz, a sworn translator of the English language registered on the list of sworn translators issued by the Minister of Justice under number TP/1/20, hereby certify compliance of this translation with the original copy of the document in the Polish language which was presented to me.

Translator's comments have been provided in square brackets.

Translator's register number: 45/2020

Poznań, 21 July 2020

[billing pages: 5.5]