



# Test Report

## Testing of safety against ball throwing

Report-No.:	903 6933 000/Sgm
Client:	Miloo Electronics Sp z o. o. Stary Wiśnicz 289 32-720 Nowy Wiśnicz, Poland
Order-No. (Client):	-
Order-No. (MPA):	<b>903 6933 000</b>
Test Item:	<b>LED lighting luminaire "SPACE-2-S"</b>
Specification Applied	[1] DIN 18032-3:2018-11 Sports halls – Halls for gymnastics, games and multi-purpose use-Part 3: testing of safety against ball throwing [2] DIN EN 13964:2014-08 Suspended ceilings - Requirements and test methods
Date of Receipt of Test Item	2019-04-23
Date of Test:	2019-04-29
Date of Report:	2019-05-02
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Enclosures :	2
Supplements:	
Total Number of Pages:	5
Number of Reports:	1

The test results relate only to the items tested.

Publication of this report in full or partly is only allowed with written authorization by MPA University of Stuttgart.

In compliance with DIN EN ISO/IEC 17025 accredited Testing Laboratory recognized by Deutsche Akkreditierungsstelle (DAkkS).  
Accreditation valid for testing methods listed in the certificates (Reg. No. D-PL-11027-04-00).

## 1 Purpose of Investigation

With writing of 2019-04-17 you ordered the Materials Testing Institute University of Stuttgart with testing of the safety against ball throwing on an installation element according to DIN 18032-3 [1], as well as testing of impact-resistance according to DIN EN 13964 [2], annex D.

## 2 Tests and Analyses Performed

### 2.1 Description of the element tested

The element investigated was the installation element

#### „SPACE-2-S“

The tested luminaire had the dimensions of 355 mm x 355 mm x 121 mm and was equipped with four LED modules. The housing consisted of a steel sheet with a thickness of 0,7 mm. The covering of the luminaire (lampshade DS) consisted of tempered glass with a thickness of 4 mm. The lampshade was fixed to the housing with 8 screws (PIN-TORX M5x16 A2 EB88116 ISO7380 INOX-A2)

The fixing of the luminaire to the ceiling was managed by a holder model UR0. The holder consisted of two steel bracket (thickness 2,0 mm, L-bracket, 243x217x40mm ), which were each connected to the housing with two screws (type M6x18). For the fixing to the ceiling an adjustable steel bracket (thickness 2.0 mm, U-bracket, 278x140x50mm) is connected to the L-brackets with 4 screws (type M6x18).

The luminaire was fixed to the ceiling with three screws (8x40 mm).

### 2.2 Execution of the tests and analyses

The test was performed according to DIN 18032-3 [1] and according to DIN EN 13964 [2], Annex D (accredited test methods according to DIN EN ISO / IEC 17025, see DAkkS-certificate D-PL-11027-04-07).

The test was performed in a laboratory at room temperature.

### 3 Results of Investigation

Table 1: Results of determination of safety against ball throwing according to DIN 18 032-3 [1] on the installation element "SPACE-2-S"

Ball	Impact angle in degree	Number of tests	Deterioration of test item
Handball	90	12	none
Handball	60	12	
Handball	60	12	

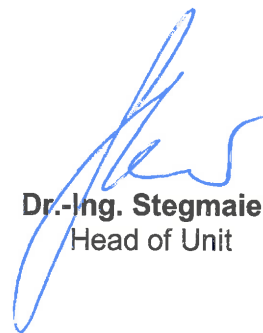
The tested element passed the test without damaging.

Therefore the element can be evaluated as safe against ball throwing according to DIN 18032-3 [1] as well as impact-resistant according to DIN EN 13964 [2], Annex D, for the Class 1A (impact speed  $16,5 \pm 0,8$  m/s).

The test report is valid for an indefinite period of time, provided that no changes are made to the components produced and marketed in comparison to the tested installation element. Any change in the installation element in comparison to the tested variant will invalidate the test report and necessitate a new inspection of the installation element.



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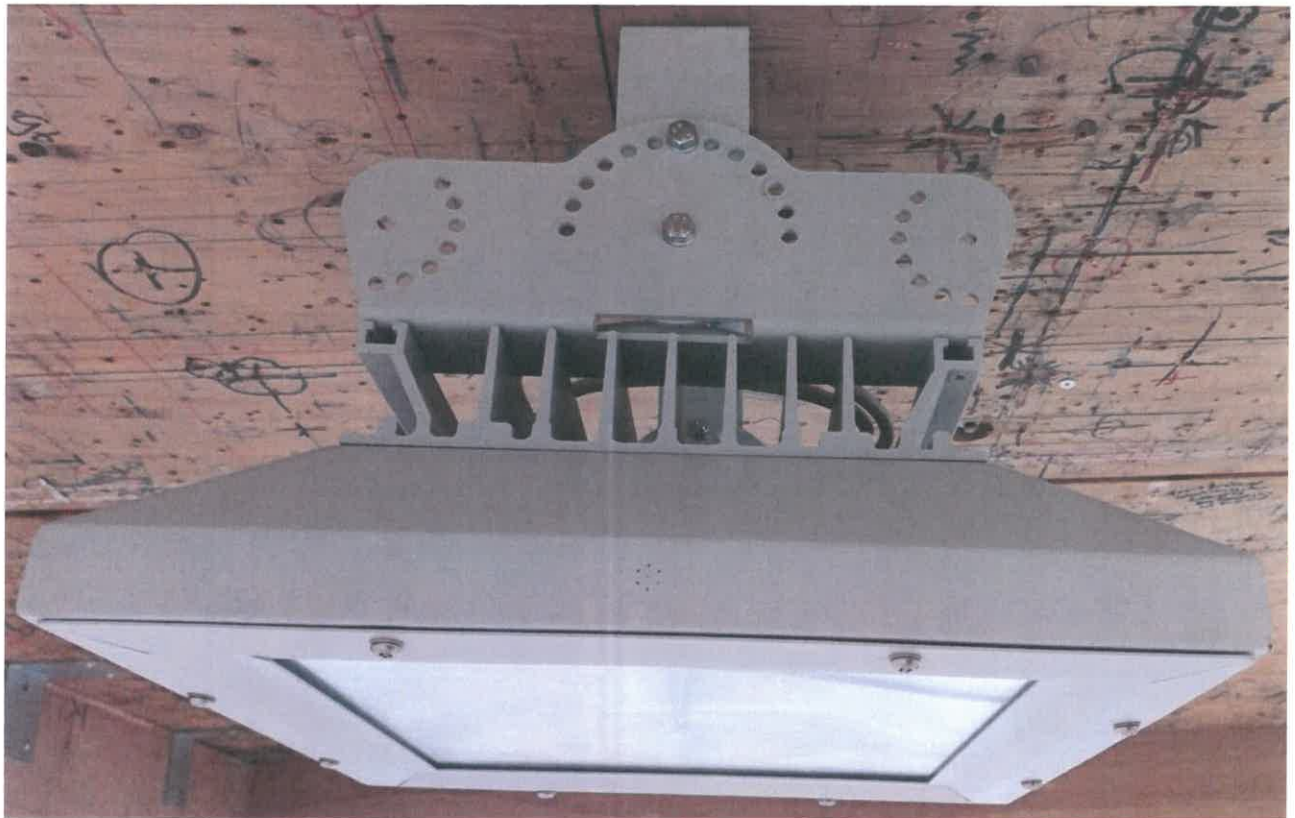


Figure 1  
Overall view:  
installation element "SPACE-2-S"



Figure 2  
Detail: suspension of the installation element "SPACE-2-S"



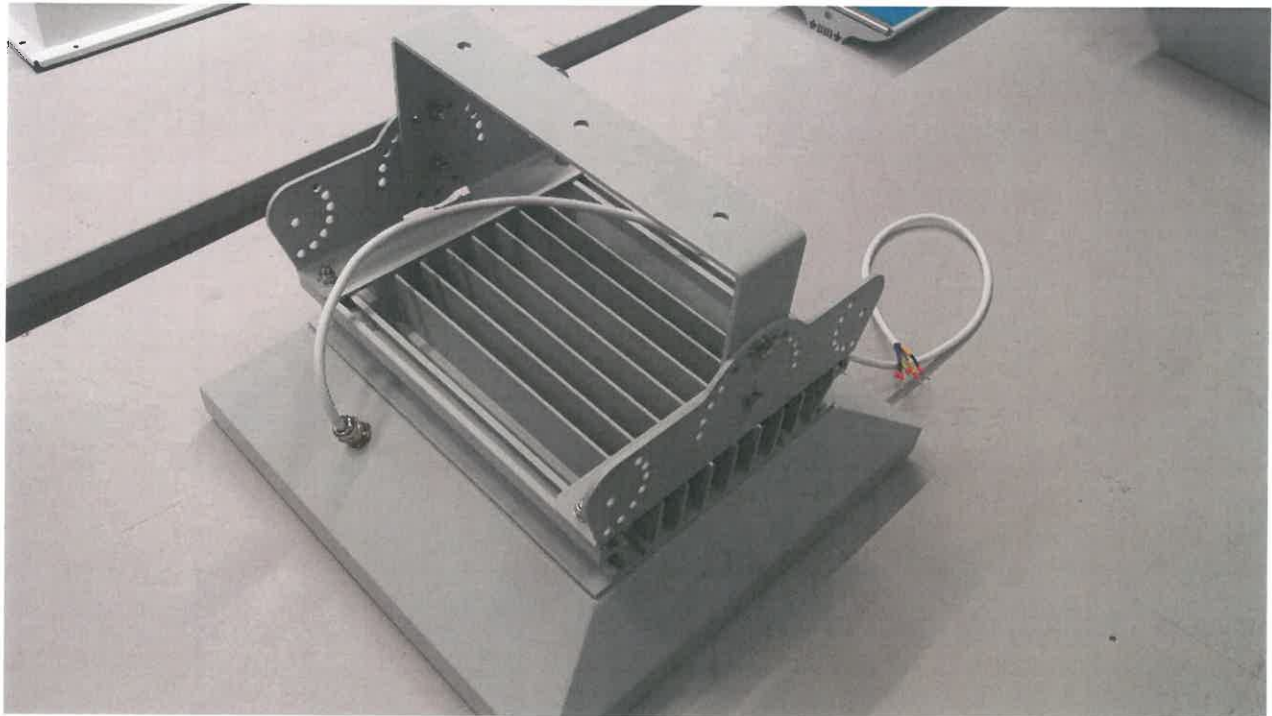


Figure 3  
Detail: suspension of the installation element "SPACE-2-S"

	L [mm]	W [mm]	H [mm]	H1 [mm]	[kg]
SPACE-2-S	355	355	121	186	4,9

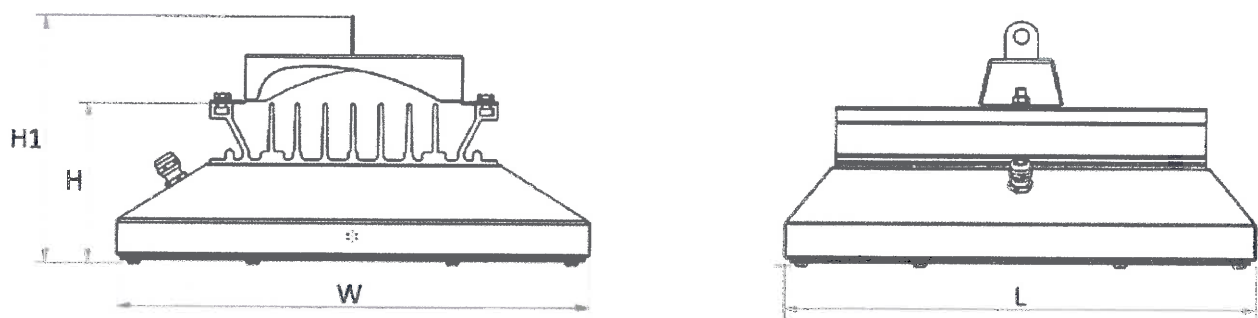


Figure 4  
Engineering drawing of the installation element  
installation element "SPACE-2-S"

