



Test Report

Testing of safety against ball throwing

Report-No.: 903 9385 000/e/Sgm

Client: Fohhn Audio AG
Großer Forst 15
72622 Nürtingen

Order-No. (Client): -

Order-No. (MPA): 903 9385 000 /Sgm

Test Item: Installation Loudspeaker "PT-70"

Test Specification with
Date of Issue: [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 /
Date of Sampling: 2020-12-10

Date of Test: 2020-12-10

Date of Report: 2020-12-10

Page 1 of 3 text pages

Enclosures : 6

Supplements: 0

Total Number of Pages: 9

Number of Copies: 2

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.

1 Purpose of Investigation

With writing of 2020-11-30 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 installation element examined was the installation loudspeaker

"PT-70"

The tested loudspeaker has the dimensions 400 mm x 800 mm x 250 mm. The housing is made of birch plywood (thickness 15 mm with steel reinforcement (thickness 1.5-3 mm)), the front grille is made of a perforated plate (steel, thickness 2.0 mm). The front grille is guided around the side edges of the housing and screwed to the housing on each side with 8 screws (M5x16 mm).

The speaker is fixed to the wall with a U-bracket VPT-70 (steel, 570 mm x 460 mm, thickness 4 mm) without TV spigots. The U-bracket is connected to the flying rail of the loudspeaker (steel, 4 mm) via a bayonet connection with a rail and 2 bolts (diameter 10 mm) on each side. The loudspeaker can be swivelled in this bracket.

The loudspeaker with U-bracket VPT-70 was attached to the mounting ceiling with 3 screws for testing.

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 assessment of conformity shall not take into account the uncertainty of measurement of the test results.

The test was performed in a laboratory at a temperature of 22 °C.

3 Results of Investigation

Table 1: Results of determination of safety against ball throwing according to DIN 18 032-3 [1]
installation loudspeaker "PT-70"

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 damage.

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.


Konrad
Testing Engineer



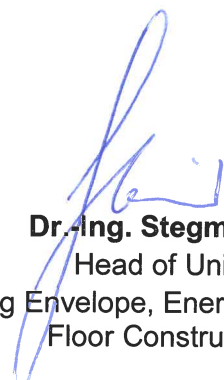

Dr.-Ing. Stegmaier
Head of Unit
Building Envelope, Energy Efficiency,
Floor Constructions



Figure 1
Overall view:
Installation Loudspeaker "PT-70"





Figure 2
Detail: U-bracket rail and bolts
Installation Loudspeaker "PT-70"



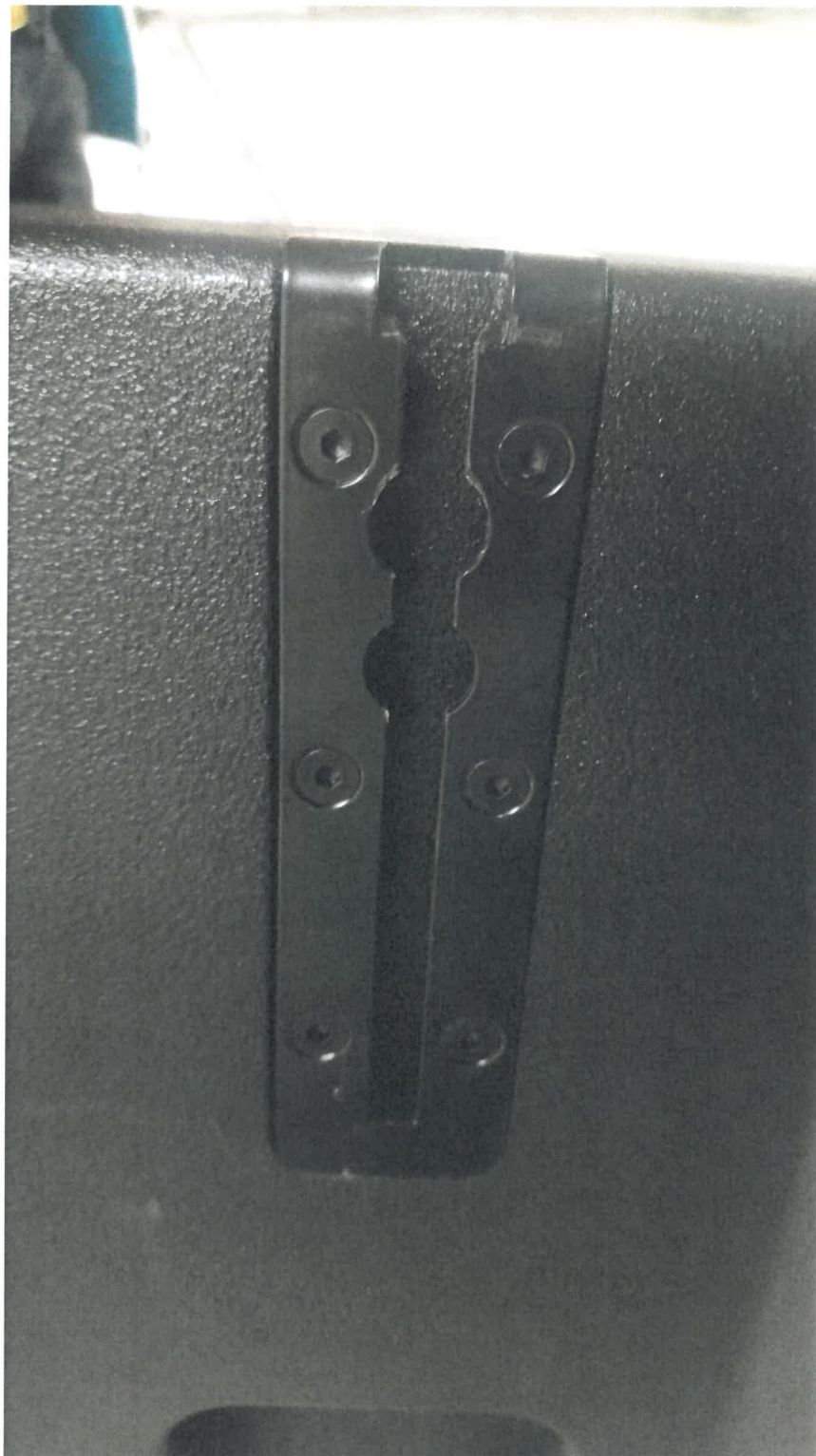


Figure 3
Detail: Flying rail for mounting the U-bracket
Installation Loudspeaker **"PT-70"**



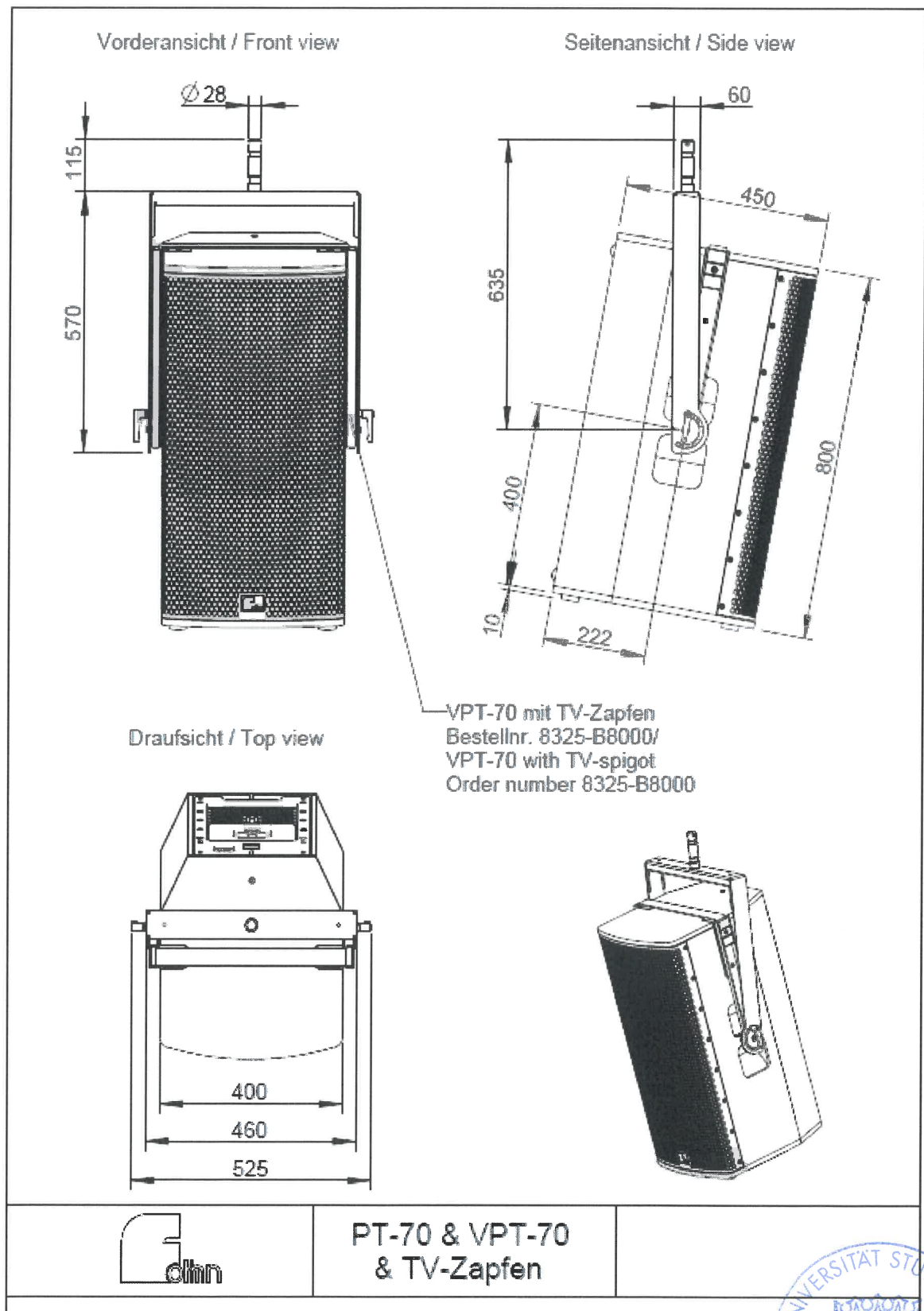


Figure 4
Technical drawing:
Installation Loudspeaker "PT-70"



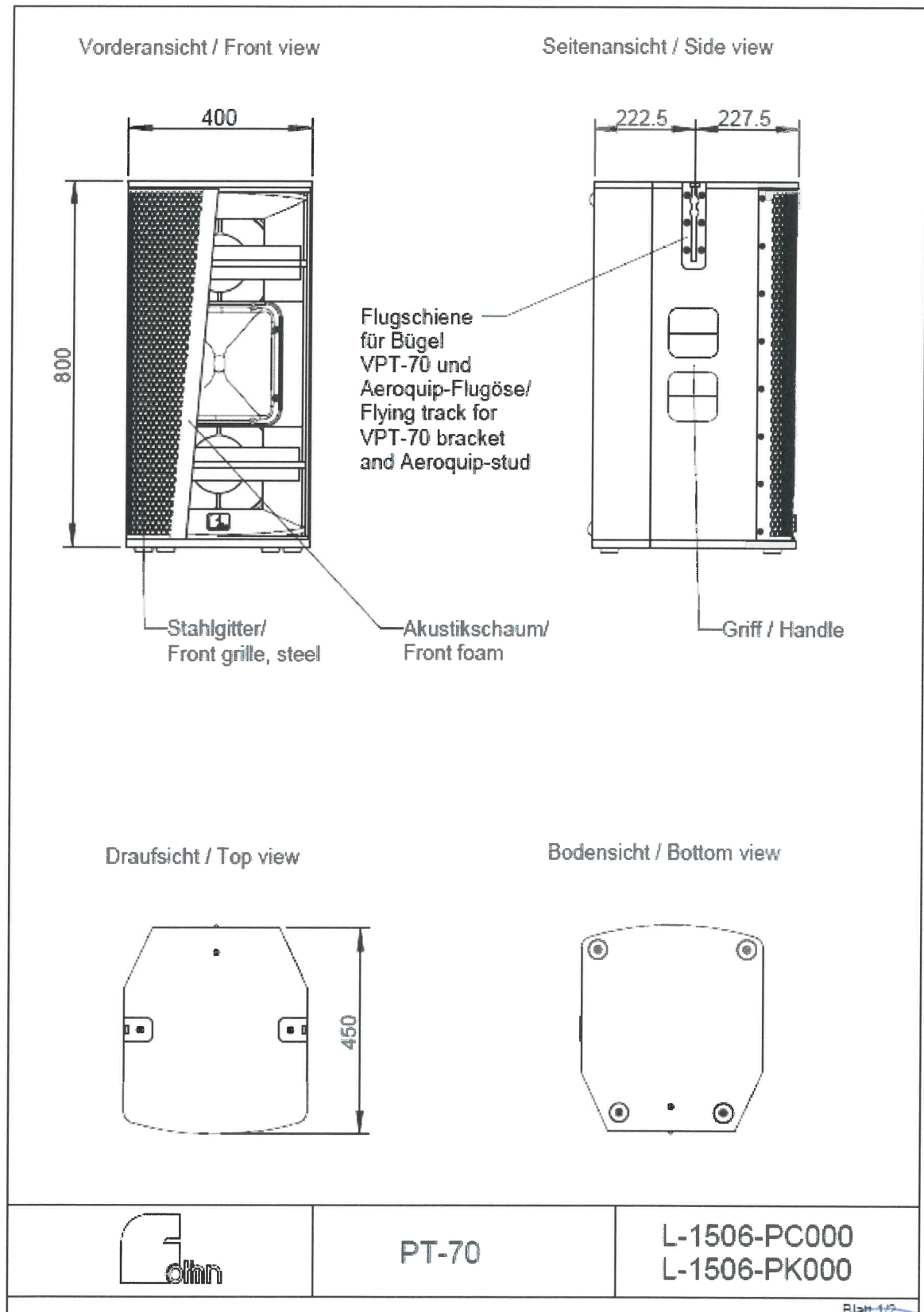


Figure 5
Technical drawing:
Installation Loudspeaker "PT-70"



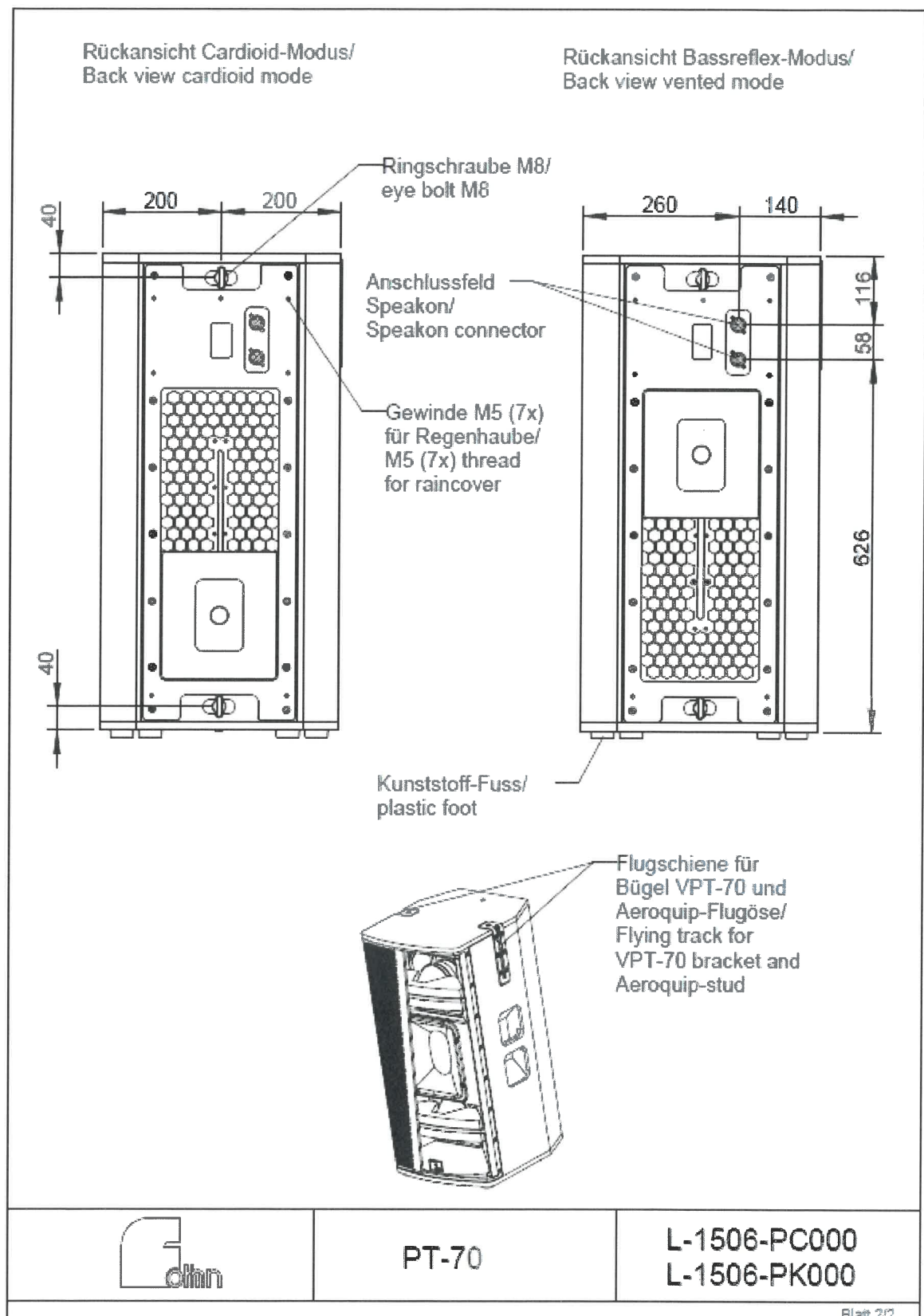


Figure 6
Technical drawing:
Installation Loudspeaker "PT-70"

