



PAVUS, a.s.

Order number:

Z220220094

**FIRE CLASSIFICATION APPROVAL
OF FIRE RESISTANCE**

No. PKO-22-011

for product

**ACO Access Cover PAVING
(AAC PAVING GS80/FR, AAC PAVING GS120/FR)**

Sponsor: ACO Industries k.s.
Havlíčková 260
582 22 Příbyslav
Czech Republic

Normative documents:

ČSN 73 0810 Fire protection of buildings - General requirements
ČSN EN 1363-1 Fire resistance tests - Part 1: General requirements
ČSN EN 1634-1+A1 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows

Fire classification approval consists of 7 pages.

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This fire classification approval is prepared based on contract of work No. Z220220094 concluded between the customer, the company ACO Industries, k.s. and the contractor, the company PAVUS, a.s.

1 TECHNICAL PRODUCT DESCRIPTION

The subjects of fire classification approval are access covers ACO Access Cover (AAC) PAVING, with fire board PROMATECT®-H: namely AAC PAVING GS80/FR and AAC PAVING GS120/FR.

The thermal exposure is from the bottom side of the cover lid, opening of the cover is from the thermal exposure.

Covers can be installed in a reinforced concrete ceiling structure.

Allowed dimensional variants of access covers are listed in Tab. 3.1 and Tab. 3.2 of this document, including the article numbers of the manufacturer's products.

Manufacturer: ACO Industries k.s., Czech Republic.

Access cover AAC PAVING GS80/FR – steel cover, opening clearance (600 x 600) mm, without concrete filling, with fire board PROMATECT®-H

Description of frame construction:

- cover frame with dimensions (736 x 736 x 182) mm made of 4 profiles bent from galvanized steel sheet (1.0037) thickness 3.0 mm (supplier Ferona a.s., Czech Republic) into the required shape (65 x 104 x 95) mm and welded together in the corners in the form of a half-groove - ridge height 87 mm and width 65 mm for CL (cover lid) mounting;
- one row of microporous EPDM sealing \varnothing 18.0 mm (supplier Jolana Fabíková JOFA, Czech Republic) glued with an adhesive like Chemoprene (supplier Henkel ČR spol. s r.o., Czech Republic) around the perimeter into the pressed groove of the frame (at the places of contact with the lid);
- on each side of the frame welded 2 steel (1.0037) anchors (110 x 30 x 3.0) mm (a total of 8 anchors) with a spacing of 426 mm (155 mm from the edges of the frame), frame with anchors fixed by fresh concrete mixture of the ceiling panel;
- frame dimensions: (736 x 736 x 182) mm;
- frame without surface coating.

Description of cover lid construction (CL):

- CL (without half-groove) with dimensions (726 x 726 x 85.1) mm made of sheet (1.0037), thickness 4.0 mm bent into the shape of a pool is welded and strengthened in corners by corner stiffener in the shape of "∇" (39 x 39) mm, thickness 4.0 mm, length 79 mm with holes for CL manipulation by using service key;
- on the bottom side of CL there is welded a cross-stiffener in shape of a cross with dimensions 4 x 550 mm from steel (1.0037) flat plates, height 60 mm, thickness 10.0 mm, length 1 x 530 mm and 2 x 260 mm and from 4 flat plates, length 270 mm welded at the end of cross stiffeners to CL (82 mm from the edge of lid);
- on the bottom side of pool near the corners of CL there are welded Allen screws M12x100 (4 pieces) with a spacing of 504 mm and 444 mm (111 mm and 141 mm from the edges of lid), on one cross stiffener there are welded 2 threaded rods M12x52 with a spacing of 344 mm (103 mm from the edges of cross stiffener);
- fire resistant filling on the bottom (thermal exposed) side of CL is from one layer of calcium-silicate board (CSB) PROMATECT®-H (supplier Promat s.r.o., Czech Republic), with dimensions (571 x 571) mm, thickness 25 mm (with holes) and mass density 870 kg/m³; CSB mounted in bottom steel (1.0037) CL frame which is welded from "L" profiles (18 x 25 x 2.0) mm with corner stiffeners (50 x 100) mm, thickness 2.0 mm with holes for Allen screws M12 and with steel stiffener (40 x 544) mm, thickness 2.0 mm in CL frame axis (290 mm from the CL frame edges) with holes for threaded rod M12; around the perimeter between CL frame and CSB is nonflammable sealing NM8370 (supplier Ulbrich Hydroautomatik s.r.o., Czech Republic);
- fire resistant board CSB with steel „L“ CL frame is mounted on the bottom steel part of CL on 4 Allen screws M12x100 with distance steel (1.0037) cylinders \varnothing 18.0 mm (with hole \varnothing 14,0 mm), length 46 mm with washer \varnothing 50.0 mm, thickness 2.0 mm and on 2 threaded rods M12x52 by using nuts and washers;
- around the external perimeter of steel „L“ CL frame there are glued two rows of intumescent self-adhesive fire sealing PROMASEAL-XT 1.8 SK, width 2x 10 mm and thickness 1.9 mm;

- CL total thickness: (85.1 + 25) mm (CL + CSB);
- CL pool dimensions: (726 x 726 x 85.1) mm
- CL total dimensions: (726 x 726 x 145+25.0) mm (with cross stiffener of CL + CSB);
- self-supporting CL with the possibility of removal from the outside using a service rod with the possibility of removal from inside - from the side of the shaft;
- CL without surface coating.

Specimen dimensions: (736 x 736 x 182) mm

Specimen opening clearance: (600 x 600) mm

Specimen weight: 62.7 kg

Detailed description of access covers AAC PAVING GS80/FR is mentioned in test report, see [1], chap. 2.2 of this document.

2 OVERVIEW OF THE USED MATERIALS

2.1 Technical standards and Regulations

- ČSN 73 0810 Fire protection of buildings - General requirements
- ČSN EN 1363-1 Fire resistance tests - Part 1: General requirements
- ČSN EN 1634-1+A1 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows
- Commission Decision 2000/605/ES establishing the list of products belonging to Classes A "No contribution to fire", dated 2020-09-26

2.2 Test reports, classification reports, test results used for this classification and technical documents

- [1] Test report of fire resistance No. Pr-20-2.046n, issued by PAVUS, a.s., Testing lab Veselí nad Lužnicí, dated 2020-07-01
- [2] Technical sheet PROMATECT®-H, Fire protective construction board, issued by Promat, 06/2019
- [3] Catalog ACO Product Catalogue, ACO Access Cover UNIFACE, PAVING, SOLID, issued by ACO Industries k.s., Q1/2020
- [4] Installation manual ACO Access Covers – UNIFACE (NM12382), issued by ACO Industries k.s., Q1/2018
- [5] Declaration of change of product name, issued by ACO Industries k.s., dated 2022-03-07

Tab. 2.1 Test reports

Serial No.	Name of the Laboratory Address Accreditation number	Sponsor	Report number Date of test Date of issue	Standard
[1]	PAVUS, a.s. Testing lab Veselí nad Lužnicí Czech Republic	ACO Industries k.s. Havlíčková 260 582 22 Přebyslav Czech Republic	Pr-20-2.046n 2020-02-17 2020-07-01	ČSN EN 1363-1:2013 with regards to ČSN EN 1634-1+A1:2019

Tab. 2.2 Stress conditions and test results

Testing procedure, Report Number, Date of issue	Parameter	
<p>[1] ČSN EN 1363-1 with regards to ČSN EN 1634-1+A1 Pr-20-2.046n 2020-07-01</p>	Thermal conditions Direction of fire exposure Designation Type of access cover Dimensions – opening clearance Description Supporting construction	<i>Standard temperature / time curve from bottom side, opening outwards from the furnace specimen No. 04 Z350487_PR, PAVING ²⁾ (600 x 600) mm (width x height) with PROMATECT®-H, with concrete rigid supporting construction with high density</i>
	Integrity (E) - cotton pad - gap gauges - sustained flaming	134 minutes, no failure 134 minutes, no failure 134 minutes, no failure
	Insulation (I₁) - average temperature - maximum temperature - max. temp., supplementary procedure - maximum temperature on frame 180°C	55 minutes 63 minutes 134 minutes, no failure <i>unmeasured</i> ¹⁾
	Insulation (I₂) - average temperature - maximum temperature - maximum temperature on frame 360°C	55 minutes 63 minutes <i>unmeasured</i> ¹⁾
	Note: ¹⁾ Temperatures on door frame were not measured due to reasons given in ČSN EN 1634-1+A1 cl. 9.1.2.3. ²⁾ Company ACO Industries k.s. provide a declaration of product identity, see [5], chap. 2.2 od this document. There was only a change in the trade name of access cover, there were no changes in design or in material.	

3 RANGE OF TEST RESULTS EXTENSION

ČSN EN 1634-1+A1 is not valid for closures mounted into a horizontal structure (ceiling, roof, etc.); the rules for direct field of application of test results for closures built into a horizontal structure were mentioned not even in ČSN EN 1634-1:2009. At this moment there are no currently valid rules for the extended application of test results for these closures. Therefore, the extension of test results is performed based on technical evaluation of the structure.

3.1 Loading of access covers

Fire resistance classification of access covers is applied and is valid only for mechanically unloaded access covers in the opposite direction than the direction of fire load. Fire resistance classification of covers is for integrity and for insulation with thermal action from below EI (a←b).

3.2 Dimensions (width x length) of access covers

Permitted dimensional variants of access covers, including article numbers and manufacturer's description, are listed in Tab. 3.1 and Tab. 3.2 of this document. Tested covers dimensions (width x height) are the maximum, they cannot be increased. Reduction of dimensions is possible.

(After the expiration of this document, the decrease in dimensions will be allowed only if the tested minimum required dimension is presented. Only then will be the range of covered dimensions between the minimum and maximum tested dimension allowed.)

The number and type of anchors, including their spacing and distance from the edge of the cover, do not need to be assessed. Access covers with all evaluated dimensions have on each side of frame 2 steel anchors with dimensions (110 x 30 x 3) mm. Maximum spacing between anchors is 482 mm, maximum distance from the edge of cover frame is 155 mm. According to the installation instructions

[4], see chap. 2.2 of this document, the anchors are used primarily for easier installation of the cover during concreting. The load-bearing capacity of the cover is ensured by concreting under the entire circumference of the assessed cover.

3.3 Height of access covers

Access covers were tested with a cover lid height of 80 mm (AAC PAVING GS80/FR). Increase in the height of the cover lid up to 120 mm (AAC PAVING GS120/FR), i.e. possible increase in the height of the concrete layer will not have a negative effect on the value of fire resistance. From the installation instructions dealing with the readiness of the shaft it is clear that since the cover frame is completely underconcreted in its entire width, it is not necessary to assess the weight increase due to the increase in the height of the cover lid relative to the anchor system, see [4], chap. 2.2 of this document. The whole weight of the cover is carried by a concrete shaft, on which the covers are placed around the perimeter.

Tab. 3.1 Allowed dimension variants for access covers AAC PAVING GS80/FR

Article No.	Description of access cover ³⁾
AAC PAVING GS80/FR – with calcium-silicate board PROMATECT®-H, thickness 25 mm	
447991	ACO Access Cover PAVING W300 L300 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
447992	ACO Access Cover PAVING W400 L400 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
447993	ACO Access Cover PAVING W500 L500 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
447994	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
447995	ACO Access Cover PAVING W400 L600 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
447996	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC A15, 1.0037, hot-dip galv.
448002	ACO Access Cover PAVING W300 L300 H80 #EI45#, LC B125, 1.0037, hot-dip galv.
448003	ACO Access Cover PAVING W400 L400 H80 #EI45#, LC B125, 1.0037, hot-dip galv.
448004	ACO Access Cover PAVING W500 L500 H80 #EI45#, LC B125, 1.0037, hot-dip galv.
448005	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC B125, 1.0037, hot-dip galv.
448010	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC B125, 1.0037, hot-dip galv.
448012	ACO Access Cover PAVING W300 L300 H80 #EI45#, LC C250, 1.0037, hot-dip galv.
448013	ACO Access Cover PAVING W400 L400 H80 #EI45#, LC C250, 1.0037, hot-dip galv.
448014	ACO Access Cover PAVING W500 L500 H80 #EI45#, LC C250, 1.0037, hot-dip galv.
448015	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC C250, 1.0037, hot-dip galv.
448020	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC C250, 1.0037, hot-dip galv.
448022	ACO Access Cover PAVING W400 L400 H80 #EI45#, LC D400, 1.0037, hot-dip galv.
448023	ACO Access Cover PAVING W500 L500 H80 #EI45#, LC D400, 1.0037, hot-dip galv.
448024	ACO Access Cover PAVING W600 L600 H80 #EI45#, LC D400, 1.0037, hot-dip galv.
Note.: ³⁾ W – opening width in mm L – opening length in mm H – cover lid height in mm LC – load class according to ČSN EN 124 (A15, B125, C250, D400). From the point of view of fire resistance is the classification E and EI from below for mechanically unloaded covers.	

Tab. 3.2 Allowed dimension variants for access covers AAC PAVING GS120/FR

Article No.	Description of access cover ³⁾
AAC PAVING GS120/FR – with calcium-silicate board PROMATECT®-H, thickness 25 mm	
448029	ACO Access Cover PAVING W300 L300 H120 #EI45#, LC B125, 1.0037, hot-dip galv.
448030	ACO Access Cover PAVING W400 L400 H120 #EI45#, LC B125, 1.0037, hot-dip galv.
448031	ACO Access Cover PAVING W500 L500 H120 #EI45#, LC B125, 1.0037, hot-dip galv.
448032	ACO Access Cover PAVING W600 L600 H120 #EI45#, LC B125, 1.0037, hot-dip galv.

448037	ACO Access Cover PAVING W300 L300 H120 #EI45#, LC C250, 1.0037, hot-dip galv.
448038	ACO Access Cover PAVING W400 L400 H120 #EI45#, LC C250, 1.0037, hot-dip galv.
448039	ACO Access Cover PAVING W500 L500 H120 #EI45#, LC C250, 1.0037, hot-dip galv.
448040	ACO Access Cover PAVING W600 L600 H120 #EI45#, LC C250, 1.0037, hot-dip galv.
448045	ACO Access Cover PAVING W600 L600 H120 #EI45#, LC B125, 1.0037, hot-dip galv.
448047	ACO Access Cover PAVING W600 L600 H120 #EI45#, LC C250, 1.0037, hot-dip galv.
448049	ACO Access Cover PAVING W400 L400 H120 #EI45#, LC D400, 1.0037, hot-dip galv.
448050	ACO Access Cover PAVING W500 L500 H120 #EI45#, LC D400, 1.0037, hot-dip galv.
448051	ACO Access Cover PAVING W600 L600 H120 #EI45#, LC D400, 1.0037, hot-dip galv.
<p>Note.: ³⁾ W – opening width in mm L – opening length in mm H – cover lid height in mm LC – load class according to ČSN EN 124 (A15, B125, C250, D400). From the point of view of fire resistance is the classification E and EI from below for mechanically unloaded covers.</p>	

4 PRODUCT CLASSIFICATION

Unloaded access covers without the gas struts and the opening assistant mechanism AAC PAVING GS80/FR mentioned in Tab. 3.1 and AAC PAVING GS120/FR mentioned in Tab. 3.2 of this document with thermal exposure from the bottom are classified in accordance with ČSN 73 0810 according to the following combinations of properties parameters and fire resistance classes

E 120 / EI₁ 45 / EI₂ 45 ⁴⁾

- max. opening clearance dimensions (300 – 600) x (300 - 600) mm
- with fire board PROMATECT®-H, min. thickness 25 mm
- mounted in rigid ceiling supporting construction
- without mechanical load from above

Note: ⁴⁾ Classification is valid only for products which are manufacture in company ACO Industries k.s., Czech Republic.

5 CONSTRUCTION TYPE DETERMINATION ACCORDING TO ČSN 73 0810

Construction type is determined based on material composition of elements according to ČSN 73 0810. Access Cover AAC PAVING consists of:

- galvanized steel frame construction and cover lid construction
- on the bottom side of cover lid is PROMATECT®-H board, thickness 25 mm

According to Commission Decision 2000/605/EC, the reaction to fire class of elements made of concrete and steel is **A1**.

According to the Technical data sheet, see [2], chap. 2.2 of this document is the fire reaction class of the fire-resistant board PROMATECT®-H **A1**.

Other materials (e.g. sealing) are present in a minimal amount and do not have negative effect on heat development.

This fire classification approval proves that the access cover AAC PAVING GS80/FR a AAC PAVING GS120/FR can be evaluated according to ČSN 73 0810, cl. 3.2 as a construction type

DP1

6 FIELD OF APPLICATION

ČSN EN 1634-1+A1:2019 is not valid for closures built in a horizontal constructure (ceiling, roof, etc.), therefore there are no rules for direct application of test results for closures built in a horizontal structure. There are currently no rules for the extended application of test results for these closures.

Conditions for mounting of fire resistance access cover in rigid construction or light mounted load bearing ceiling were determined in accordance with ČSN EN 1634-1+A1 on the same structures for which one or more changes listed below were made and which are such that the structure with its rigidity and stability still complies with the relevant standard:

- materials and construction of fire resistance cover shall be the same and the manner of operation shall not be changed;
- the number of leaves shall not be changed;
- the thickness of cover shall not be reduced;
- if the surface coating is not expected to contribute to fire resistance, different coatings are permitted and may be applied;
- the number of stiffening elements for mounting of fire resistance covers to the supporting structures may be increased, but shall not be reduced, and the distance between the fastening elements may be reduced, but shall not be increased;
- the number of hinges and pins may be increased, but shall not be reduced;
- allowed dimension variants including the classification of fire resistance are given in chap. 3.2 of this document;
- the fire resistance of access covers in a rigid standard support construction with high bulk density can be applied to covers installed in the same way in ceilings with the same or greater bulk density and thickness than with which it was tested;

7 VALIDITY OF FIRE CLASSIFICATION APPROVAL

This fire classification certificate is valid until **2024-12-22**, provided that there are no changes to the product and / or legal and technical regulations applicable to the product.

The extension of this document is conditioned by testing the required minimum dimensions separately for the required types of access covers (see chap. 3.3).

The client may request the issuing organization to review the effect of the changes on the validity of the classification.

This Approval is valid only as a whole; each page has to be provided with the identification number and page number of the total number of pages. This Approval does not substitute either the type of approval or the certification of products.

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