

CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE IN ACCORDANCE WITH EN 13501-3:2005+A1:2009 OF THE SC60-COSMO FIRE DAMPER

Classification no.	2023-Efectis-R000614[Rev.1]
Sponsor	N.V. RF-Technologies Lange Ambachtstraat 40 9860 OOSTERZELE BELGIUM
Product name	SC60-COSMO
Prepared by	Efectis Nederland BV
Notified body no.	1234
Author(s)	S.D. Nieuwendijk M.Sc. P.W.M. Kortekaas A. Burgstad B.Sc.
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1. INTRODUCTION

1.1 GENERAL

This classification report defines the classification assigned to a SC60-COSMO fire damper in accordance with the procedures given in EN 13501-3:2005+A1:2009.

1.2 REVISION INFORMATION

This is a revised version of this classification report. This version supersedes all previous versions of this reports that are hereby withdrawn. Details on the changes can be found in the tables below.

Table 1.1: Revision information

Issue	Date of issue	Report no.
First issue	October of 2023	2023-Efectis-R000614
First revision	December of 2023	2023-Efectis-R000614[Rev.1]

1.2.1 First revision detailed information

Table 1.2: First revision information

Chapter of revision	The full report
Reason of revision	Different layout choices, some minor corrections, other test reports added, some details added and some deleted
Consequences of revision	Field of Direct Application contains more possibilities

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL DESCRIPTION FIRE DAMPER

Damper SC60-COSMO is a combination of an insulated valve damper type SC+, activated by a fusible link, and a swing valve (back draft damper). The fusible link reacts at 72 °C. The fire damper is a circular damper with galvanised steel casing. The inner diameter of the fire damper is 97.3 mm up to 197.3 mm and the outer diameter 98.5 mm up to 198.5 mm. On the casing of the damper are a rubber sealing ring and an intumescent strip. The damper has two semi-circular blades made of calcium silicate board (thickness 6 mm). On the damper housing of galvanised steel a rubber sealing ring and an intumescent strip are placed.

Below is a limited description of specific tests. For details we refer to the test reports mentioned.

Report 2023-Efectis-R000129 dated May 2023:

Aerated concrete wall, soft mineral wool and fire stopping mastic, insulated	
Supporting construction	Aerated concrete wall, thickness 100 mm
Outer diameter of the fire damper	198.5 mm
Inner diameter of the fire damper	197.3 mm
Blade pivot axis	Horizontal

Actuating mechanism	Fusible link SC-D203, 72°C
Location actuating mechanism	Unexposed side
Location of the damper	66 mm away from the unexposed side of the wall
Seal between damper and wall	Mineral wool with density of 40 kg/m ³ Used type: Rockwool Sono Finishing: Promaseal AG on the exposed side
Insulation around the duct	Elastomeric foam based on synthetic rubber Used type: Armacell Armaflex EVO Thickness: 13 mm

Aerated concrete wall, rigid mineral wool, insulated	
Supporting construction	Aerated concrete wall, thickness 100 mm
Outer diameter of the fire damper	198.5 mm
Inner diameter of the fire damper	197.3 mm
Blade pivot axis	Horizontal
Actuating mechanism	Fusible link SC-D203, 72°C
Location actuating mechanism	Unexposed side
Location of the damper	66 mm away from the unexposed side of the wall
Seal between damper and wall	Mineral wool boards with ablative coating, density of 140 kg/m ³ Used type: Promastop-CC, 2 x 50 mm Finishing: Promaseal-CC coating
Insulation around the duct	Elastomeric foam based on synthetic rubber Used type: Armacell Armaflex EVO Thickness: 13 mm

Report 2023-Efectis-R000131[Rev.1] dated June 2023:

Standard flexible supporting construction, soft mineral wool, insulated	
Supporting construction	Metal stud wall, thickness 100 mm 2 layers of 12.5 mm thick gypsum board on each side Insulated with Rocksono
Outer diameter of the fire damper	198.5 mm
Inner diameter of the fire damper	197.3 mm
Blade pivot axis	Horizontal
Actuating mechanism	Fusible link SC-D203, 72°C
Location actuating mechanism	Unexposed side
Location of the damper	66 mm away from the unexposed side of the wall
Seal between damper and wall	Mineral wool with density of 40 kg/m ³ Used type: Rockwool Sono 50 mm Finishing: Promaseal AG
Insulation around the duct	Elastomeric foam based on synthetic rubber Damper A: Armacell Armaflex EVO

	Damper B: Armacell Armaflex PROTECT Thickness: 13 mm
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Report 2023-Efectis-R000466 dated June 2023:

Shaft wall, rigid mineral wool, insulated	
Supporting construction	Metal stud shaft wall, thickness 80 mm 2 layers of 15 mm thick gypsum board, type "F"
Outer diameter of the fire damper	198.5 mm
Inner diameter of the fire damper	197.3 mm
Blade pivot axis	Horizontal
Actuating mechanism	Fusible link SC-D203, 72°C
Location actuating mechanism	Unexposed side
Location of the damper	66 mm away from the unexposed side of the wall
Seal between damper and wall	Mineral wool boards with ablative coating, density of 140 kg/m ³ Damper A: Promastop-CC, 2 x 50 mm Finishing: Promaseal-CC coating Damper B: Hilti CFS-CT B 1S Finishing: CFS S-ACR
Insulation around the duct	Elastomeric foam based on synthetic rubber Used type: Armacell Armaflex EVO AF Thickness: 13 mm

3. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THE CLASSIFICATION

3.1 TEST REPORTS

Name of Laboratory	Name of applicant	Test report No.	Test method
Efectis Nederland	Rf-Technologies	2023-Efectis-R000129 dated May 2023	EN 1366-2:2015
		2023-Efectis-R000131[Rev.1] dated June 2023	EN 1366-2:2015
		2023-Efectis-R000466 dated June 2023	EN 1366-2:2015
WFRGent nv	Rf-Technologies	20819A dated April 2021	EN 1366-2:2015
WFRGent nv	Rf-Technologies	12818 dated 25 June 2007	EN 1366-2:1999

3.2 TEST RESULTS AND CLASSIFICATION

This classification has been carried out in accordance with clause 7 of EN 13501-3:2005+A1:2009.

Test report	2023-Efectis-R000129
Supporting construction	Aerated concrete wall
Seal	Rockwool Sono – Promaseal AG
Insulation duct	Armacell Armaflex EVO
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300 Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	91*
Thermal insulation (I)	84
Smoke leakage (S)	87
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S

Test report	2023-Efectis-R000129
Supporting construction	Aerated concrete wall
Seal	Promastop CC
Insulation duct	Armacell Armaflex EVO
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300 Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	91*
Thermal insulation (I)	91*
Smoke leakage (S)	91*
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S
	EI 90 (ve i ← o) S

Test report	2023-Efectis-R000131[Rev.1]
Supporting construction	Metal stud wall
Seal	Rockwool Sono – Promaseal AG
Insulation duct	Armacell Armaflex EVO
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300 Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	95
Thermal insulation (I)	94
Smoke leakage (S)	95
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S
	EI 90 (ve i ← o) S

Test report	2023-Efectis-R000131
Supporting construction	Metal stud wall
Seal	Rockwool Sono – Promaseal AG
Insulation duct	Armacell Armaflex Protect
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	101
Thermal insulation (I)	101
Smoke leakage (S)	100
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S
	EI 90 (ve i ← o) S

Test report	2023-Efectis-R000466
Supporting construction	Shaft wall
Seal	Promastop CC
Insulation duct	Armacell Armaflex EVO
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300 Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	80*
Thermal insulation (I)	60
Smoke leakage (S)	80*
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S

Test report	2023-Efectis-R000466
Supporting construction	Shaft wall
Seal	Hilti CFS-CT B 1S
Insulation duct	Armacell Armaflex EVO AF
Tested outer diameter	198.5 mm
Location actuating mechanism	Unexposed side
Operating pressure	-300Pa
<i>Time in minutes during which the criterion was fulfilled</i>	
Integrity (E)	80*
Thermal insulation (I)	60
Smoke leakage (S)	80*
<i>Classification according to EN 13501-3:2005 + A1:2009</i>	
	EI 30 (ve i ← o) S
	EI 60 (ve i ← o) S

* no failure

NOTE EN 13501-3:2005 + A1:2009 gives a limited explanation for the direction of the classification: (o → i) and (i → o). Efectis Nederland uses the following definition: (o → i) the temperature sensing element is located on the unexposed side of the specimen, (i → o) the temperature sensing element is located on the exposed side of the specimen.

NOTE For specimens tested in vertical separations 've' is used, 'ho' for specimens tested in horizontal separations.

4. CLASSIFICATION AND FIELD OF APPLICATION

This classification has been carried out in accordance with EN 13501-3:2005+A1:2009.

4.1 CLASSIFICATION

The fire damper 'SC60-COSMO has been classified':

EI 60 (v_e i ↔ o) S

For the fire damper SC60-COSMO built into an aerated concrete wall of 100 mm, sealed with mineral wool boards with ablative coating and a density of minimum 140 kg/m³:

EI 90 (v_e i ↔ o) S

For the fire damper SC60-COSMO built into a metal stud wall of 100 mm, sealed with mineral wool boards with ablative coating and a density of minimum 140 kg/m³:

EI 90 (v_e i ↔ o) S

For the fire damper SC60-COSMO built into a metal stud wall of 100 mm, sealed with soft mineral wool with a density of minimum 40 kg/m³:

EI 90 (v_e i ↔ o) S

4.2 FIELD OF DIRECT APPLICATION

4.2.1 Size of fire damper

Since both the smallest and largest size of this fire damper have been tested with regard to leakage, the obtained fire resistance classification applies to this entire range.

4.2.2 Fire dampers installed within structural openings

A test result obtained for a fire damper installed within a structural opening is only applicable to fire dampers of the same type installed in the same orientation and position in relation to the supporting construction as that tested.

4.2.3 Fire dampers installed onto the face of a wall or a floor

No direct application.

4.2.4 Fire dampers remote from a wall or floor

No direct application.

4.2.5 Fire from above

No direct application.

4.2.6 Separation between fire dampers and between fire dampers and construction elements

A test result obtained for only one fire damper or for two fire dampers with a minimum clear separation of 200 mm is applicable to a minimum separation in practice of:

- a) 200 mm between fire dampers installed in separate ducts;
- b) 75 mm between fire damper and a construction element (wall/floor) – e.g. for a damper in a wall, this is the distance between the damper casing (largest dimension) mounted in the supporting construction and a wall or floor adjacent to that supporting construction.

4.2.7 Supporting constructions

A test obtained for a fire damper mounted in or on the face of a standard supporting construction is applicable to a supporting construction of the same type with a fire resistance equal to or greater than that of the standard supporting construction used in the test (thicker, denser, more layers of board, as appropriate).

The test result can also apply to cellular or hollow masonry blocks or slabs that have a fire resistance time equal or greater than the fire resistance required for the fire damper installation.

Test results obtained with dampers installed in flexible vertical supporting constructions may be applied to rigid supporting constructions of a thickness equal to or greater than that of the element used in the tests, provided that the classified fire resistance of the rigid supporting construction is greater than or equal to the one used for the test. The sealants used shall be the same as those tested. Any fasteners used shall be fire rated to suit the supporting construction that is used.

Test results obtained with dampers installed in insulated flexible vertical supporting constructions may be applied to applications where the same flexible vertical supporting construction is uninsulated (less onerous as per EN 1363-1) – aperture framing shall be used using the same materials as used in the test partition construction, using the same number of boards as was tested.

Test results obtained with dampers installed in flexible vertical supporting constructions made with steel studs are not applicable to flexible vertical supporting constructions made using timber studs.

Test results obtained with dampers installed in aerated concrete are applicable to rigid constructions made from hollow blocks, provided that the holes are filled/closed before the addition of the final penetration seal.

If a specific supporting construction different from those described in EN 1366-2:2015 §7.2 is selected, the test results obtained are applicable only to that specific wall, partition or floor having a thickness and/ or density equal or greater than that tested.

4.2.8 Blade pivot axis

No direct application.

5. LIMITATIONS

5.1 RESTRICTIONS

There are no restrictions to the validity of this classification document unless the product changes, the test or classification standard is revised, or the test report is revised or withdrawn.

5.2 WARNING

This European standard does not represent type approval or certification of the product.

SIGNED



S.D. Nieuwendijk, M.Sc.
Project leader Fire Resistance

APPROVED



P.W.M. Kortekaas
Project leader Fire Resistance Engineering



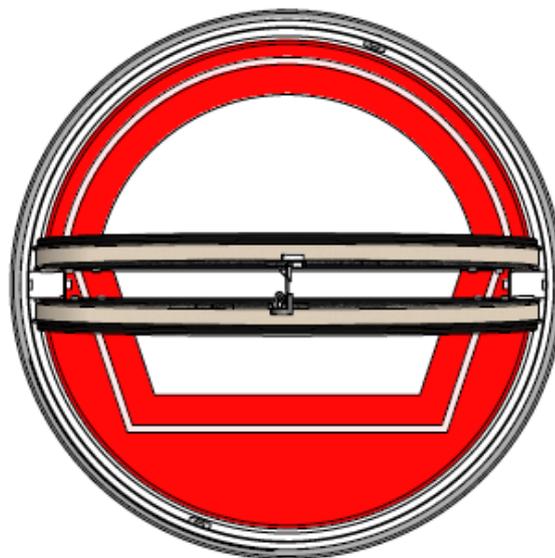
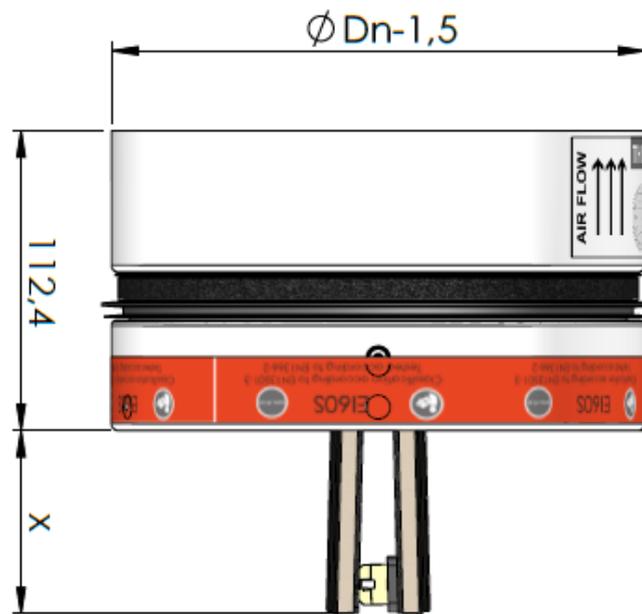
A. Burgstad B.Sc.
Project leader Fire Resistance

6. FIGURES



1. Tunnel in steel
2. Two semi-circular blades
3. Intumescent strip around the tunnel
4. Rubber sealing ring
5. Fusible link 72°
6. 2 blocking hooks
7. Backdraft damper

Figure 1: Overview of damper SC-60 Cosmo



Dn / Par	x
100	18
125	31
160	49
200	69

Figure 2: Dimensions of damper SC-60 Cosmo

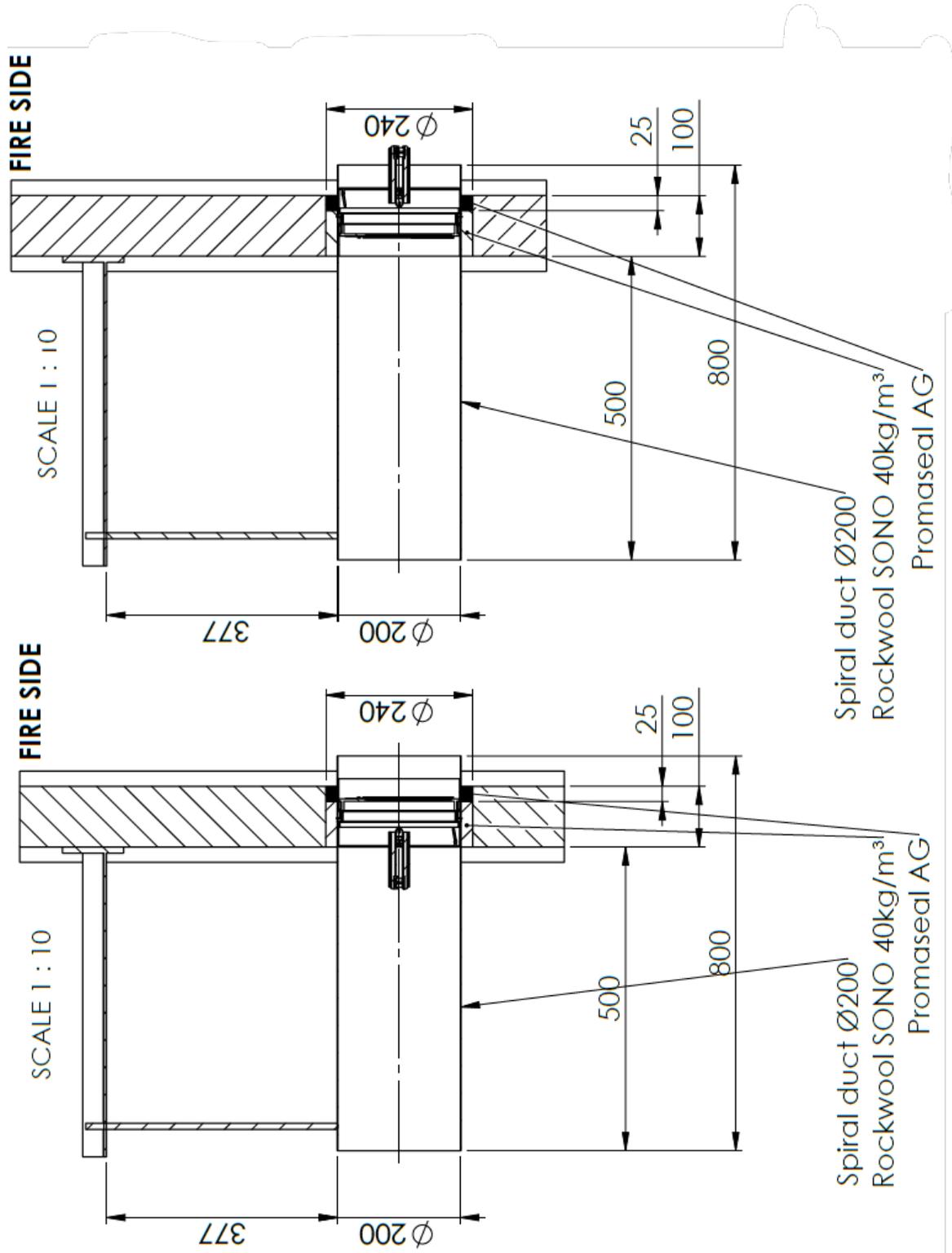


Figure 3: Section over damper C (below) and damper D (above)

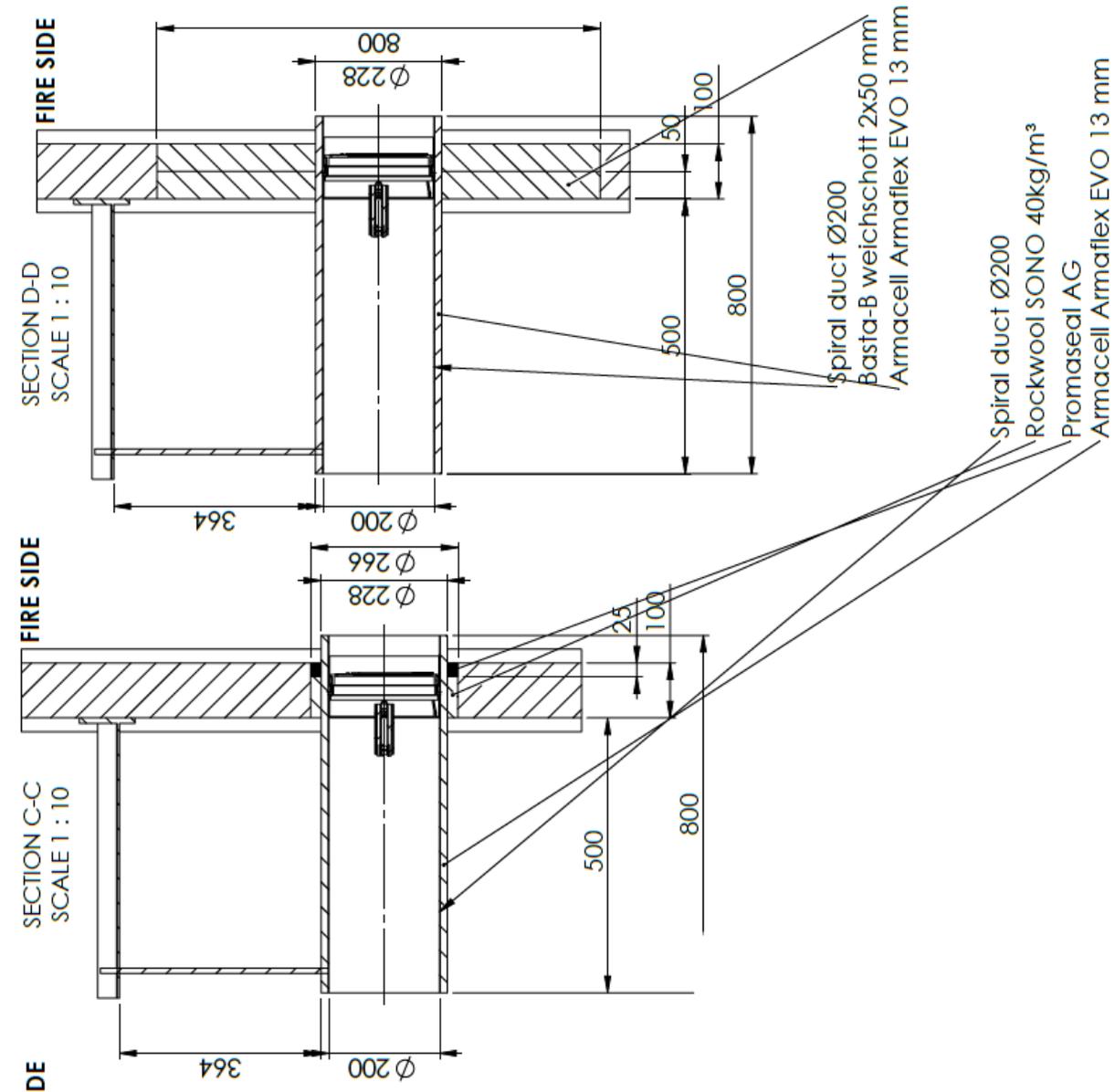


Figure 4: Section over damper A (below) and damper B (above)