Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment ETA-18/0152 of 26 August 2020

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	"Vulcanus"
Product family to which the construction product belongs	Kit for closure system for conveyor systems
Manufacturer	JANSEN TORE GmbH & Co. KG Am Wattberg 51 26903 Surwold DEUTSCHLAND
Manufacturing plant	JANSEN TORE GmbH & Co. KG Am Wattberg 51 26903 Surwold DEUTSCHLAND
This European Technical Assessment contains	29 pages including 21 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 350022-01-1107

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Specific part

1 Technical description of the product

This European technical approval applies for the kit for closure system "Vulcanus" for conveyor systems, hereinafter referred to as kit "Vulcanus". The kit “Vulcanus” can be designed to close vertically or horizontally in walls.

The kit "Vulcanus" primarily consists of the following components[1]:

– movable sliding leaf

The approx. 62 mm thick sliding leaf consists of various vertically arranged panels. A panel consists of a steel-sheet housing and two layers of expanding pearlite (each 20 mm thick) between which a gypsum board (20 mm thick) is secured with water glass adhesive.

The number of panels per movable sliding leaf is limited to five panels. The width of the panel must not go below 357 mm and must not exceed 1.100 mm.

Rectangular steel hollow profiles (40 mm x 20 mm x 2 mm) are arranged between the gypsum boards in the border area of the panel.

Im Randbereich der Paneele sind rechteckige Stahlhohlprofile (40 mm x 20 mm x 2 mm) zwischen Gipsplatten angeordnet.

In the case of continuous conveyors a sealing segment – consisting of a steel hollow profile (80 mm x 40 mm x 3 mm) and covered with calcium silicate boards - is placed at the closing edge of the sliding leaf.

The sidewise depth of coverage of sliding leaf and wall amounts to 90 mm. The upper depth of coverage of sliding leaf and wall amounts to 120 mm.

– Fixed panel with clearance for the conveyor

The fixed panel with a depth of 195 mm consists of steel hollow profiles, covered with fire protection boards. It is secured to the wall via brackets.

The clearance in the fixed panel is configured for the respective conveyor technology. Various intumescent materials are used in the necessary functional gaps. In the fixed panel may be inserted cable penetration seals (table 4)[1].

– Guide for the sliding leaf

The guiding rails, running gears, running rails and wall fastenings are dimensioned according to dimension and weight of the sliding leaf. They comply with the declarations of the drawings of the control plan[1] at least.

- Vertical closing top down

  Roller secured at the side of the sliding leaf are guided in a running rail which is fixed to the wall. Grip plates secured at the top of the sliding leaf (lateral distance maximum 710 mm) grip behind locking nuts when closing.

- Horizontal closing on a wall

  The sliding leaf is suspended from the running rail by running gears. The rail is secured to the wall using brackets. For the opposite guidance guide roller are located at the bottom line of the closure.

  Grip plates secured on the opening side of the sliding leaf (lateral distance maximum 1.200 mm) grip behind locking nuts when closing.

[1] The documents describing the structure of the kit "Vulcanus" in detail and the product specifications of the building materials used are deposited with DIBt.

- Seal system

  In the overlap of the sliding leaf and adjacent wall on the side of the sliding leaf facing the wall additional strips of an intumescent material[1] are positioned.

  The closure in the conveyor technology area is sealed by sealing segments on the sliding leaf and the fixed panel.

  Strips of calcium silicate boards are positioned in the gaps between conveyor technique and fixed panel. Strips of an intumescent material are positioned in the residual gaps[1].

- Closing device (closing weight system)

  The kit "Vulcanus" will be closed via stored mechanical energy (closing weight system, spring force, deadweight of the sliding leaf).

2 Specification of the intended use in accordance with the applicable European Assessment Document

In accordance with this European Technical Assessment, the kit "Vulcanus" was assessed as closure to seal necessary openings of trackbound conveyors (see table 4) in internal walls (see table 1 to 3).

The kit "Vulcanus" is not intended for passenger transportation. The normal position of the closure shall be opened or closed.

The following applies to the kit "Vulcanus":

– The normally-open closure (open in the normal position; closes in the event of a fire) is equipped with a hold-open system suitable for the closure – where applicable in conjunction with the national regulations.

– The normally-open closure, which cannot be opened from a fixed position (floor, pedestal etc.), is equipped with a drive to open the closure.

– It is ensured that the closing of the closure is not obstructed by conveyed goods or other objects.

– It is ensured that the closed closure cannot be damaged by conveyed goods or other objects.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the kit "Vulcanus" of at least 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

NOTE: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this document.

Table 1: Dimensions of the clearance of the opening in internal walls for single-leaf slider leaf - vertical closing top down

component (supporting construction) in which the closure is installed[a)]	maximum fire resistance class[b)]	clearance of the wall opening		
		maximum clear width	maximum clear height	maximum surface
high-density solid wall (masonry or solid concrete with an overall density of ≥ 800 kg/m³ and a thickness ≥ 150 mm)	$EI_2$90	3.420 mm	3.300 mm	11,29 m²
	$EI_1$45	3.420 mm	3.480 mm	11,90 m²
low-density solid wall (aerated concrete with an overall density of ≥ 450 kg/m³ and a thickness ≥ 150 mm)	$EI_2$90	3.420 mm	3.300 mm	11,29 m²
	$EI_1$45	3.420 mm	3.480 mm	11,90 m²
lightweight wall with frame in accordance with annex 20, thickness ≥ 100 mm	$EI_2$90	3.420 mm	3.300 mm	11,29 m²
	$EI_1$45	3.420 mm	3.480 mm	11,90 m²

a) Supporting construction to EN 1366-7[2], section 7.2 or EN 1363-1[3], section 7.2
b) Fire resistance class per EN 13501-2[4] in accordance with the Evaluation Report

Table 2: Dimensions of the clearance of the opening in internal walls for single-leaf slider leaf - horizontal closing

component (supporting construction) in which the closure is installed[a)]	maximum fire resistance class[b)]	clearance of the wall opening		
		maximum clear width	maximum clear height	maximum clear width
high-density solid wall (masonry or solid concrete with an overall density of ≥ 800 kg/m³ and a thickness ≥ 150 mm)	EI_2 90	1.750 mm	3.400 mm	5,95 m²
	EI_2 30 EI_1 30	4.000 mm	4.000 mm	16,00 m²
low-density solid wall (aerated concrete with an overall density of ≥ 450 kg/m³ and a thickness ≥ 150 mm)	EI_2 90	1.750 mm	3.400 mm	5,95 m²
	EI_2 30 EI_1 30	4.000 mm	4.000 mm	16,00 m²
lightweight wall with frame in accordance with annex 21, thickness ≥ 100 mm	EI_2 90	1.750 mm	3.400 mm	5,95 m²
	EI_2 60 EI_1 45	4.000 mm	4.000 mm	16,00 m²

a) Supporting construction to EN 1366-7[2], section 7.2 or EN 1363-1[3], section 7.2
b) Fire resistance class per EN 13501-2[4] in accordance with the Evaluation Report

[2] EN 1366-7:2004 Fire resistance tests for service installations - Part 7: Conveyor systems and their closures
[3] EN 1363-1:1999 Fire resistance tests - Part 1: General requirements
[4] EN 13501-2:2007 Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services

Table 3: Dimensions of the clearance of the opening in internal walls for double-leaf slider leaf - horizontal closing

component (supporting construction) in which the closure is installed[a)]	maximum fire resistance class[b)]	clearance of the wall opening		
		maximum clear width	maximum clear height	maximum clear width
high-density solid wall (masonry or solid concrete with an overall density of ≥ 800 kg/m³ and a thickness ≥ 150 mm)	EI_2 90	3.500 mm	3.400 mm	11,90 m²
	EI_1 60	4.000 mm	4.000 mm	16,00 m²
low-density solid wall (aerated concrete with an overall density of ≥ 450 kg/m³ and a thickness ≥ 150 mm)	EI_2 90	3.500 mm	3.400 mm	11,90 m²
	EI_1 60	4.000 mm	4.000 mm	16,00 m²
lightweight wall with frame in accordance with annex 21, thickness ≥ 100 mm	EI_2 90	3.500 mm	3.400 mm	11,90 m²

a) Supporting construction to EN 1366-7[2], section 7.2 or EN 1363-1[3], section 7.2
b) Fire resistance class per EN 13501-2[4] in accordance with the Evaluation Report

In order to seal the continuous conveyor technology, the sealing systems specified in table 4 are used.

Table 4: Sealing systems for the continuous conveyor technology[5]

sealing system for	minimum depth of the seal on the fixed panel	minimum depth of the seal at the sliding leaf	maximum fire resistance class of the sealing system
chain conveyor (annex 15) (continuous steel profiles)	195 mm	160 mm	EI 90
Roller conveyor (annex 16 and 17) between the rollers two webs (Promatect-H) or steel angles (covered with Promaseal PL) (continuous steel profiles)	195 mm	160 mm	EI 90
belt conveyor (annex 18) (continuous steel profiles)	195 mm	160 mm	EI 90
electro-suspension track (annex 19) aluminium rack with separating cut (2 mm)	227 mm	227 mm	EI 60

5 see annex 15 to 19

The conveyor tracks can be continuous or disconnected or disconnected while closing of the closure in the closing area of the sliding leaf.

Table 5: Cable penetration seal (in the fixed panel)

Cable penetration seal	fire resistance class	clearance of the opening in the fixed panel		
		maximum clear width	maximum clear height	maximum surface
Hilti Brandschutzstein CFS-BL P (ETA-18/1024)	EI 90	200mm	50 mm	0,01 m^2

3 Performance of the product and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
Fire resistance (EN 13501-2)	See clause 2, table 1 to 5
Mechanical durability of self-closing (EN 13501-2)	Installation in walls – vertical closing: C2 – horizontal closing: C5
Reaction to fire (EN 13501-1)	See following table 6

Table 6: reaction to fire of the used materials

component	**material**	**reaction to fire class according to EN 13501-1**
slider leaf, fixed panel	steel sheet	A1
	calzium silicate boards	A1
	gypsum boards	A1
	gypsum mortar	A1
	expanding pearlite board	C
	Water glass adhesive	at least class E
guide	steel	A1
Seal system	Intumescent material	at least class E
cable penetration seal	Intumescent material	at least class E
Closing device	steel	A1
Fixing material	steel	A1

3.2 Hygiene, health and the environment (BWR 3)

No performance assessed.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 350022-01-1107, the applicable European legal act is: 1999/454/EG.

The system to be applied is: 1

In addition, with regard to e.g. reaction to fire of components and materials for products covered by this EAD the applicable European legal act is: 1999/454/EG.

The systems to be applied are: 1 / 3 / 4 (dependent on classes of reaction to fire)

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

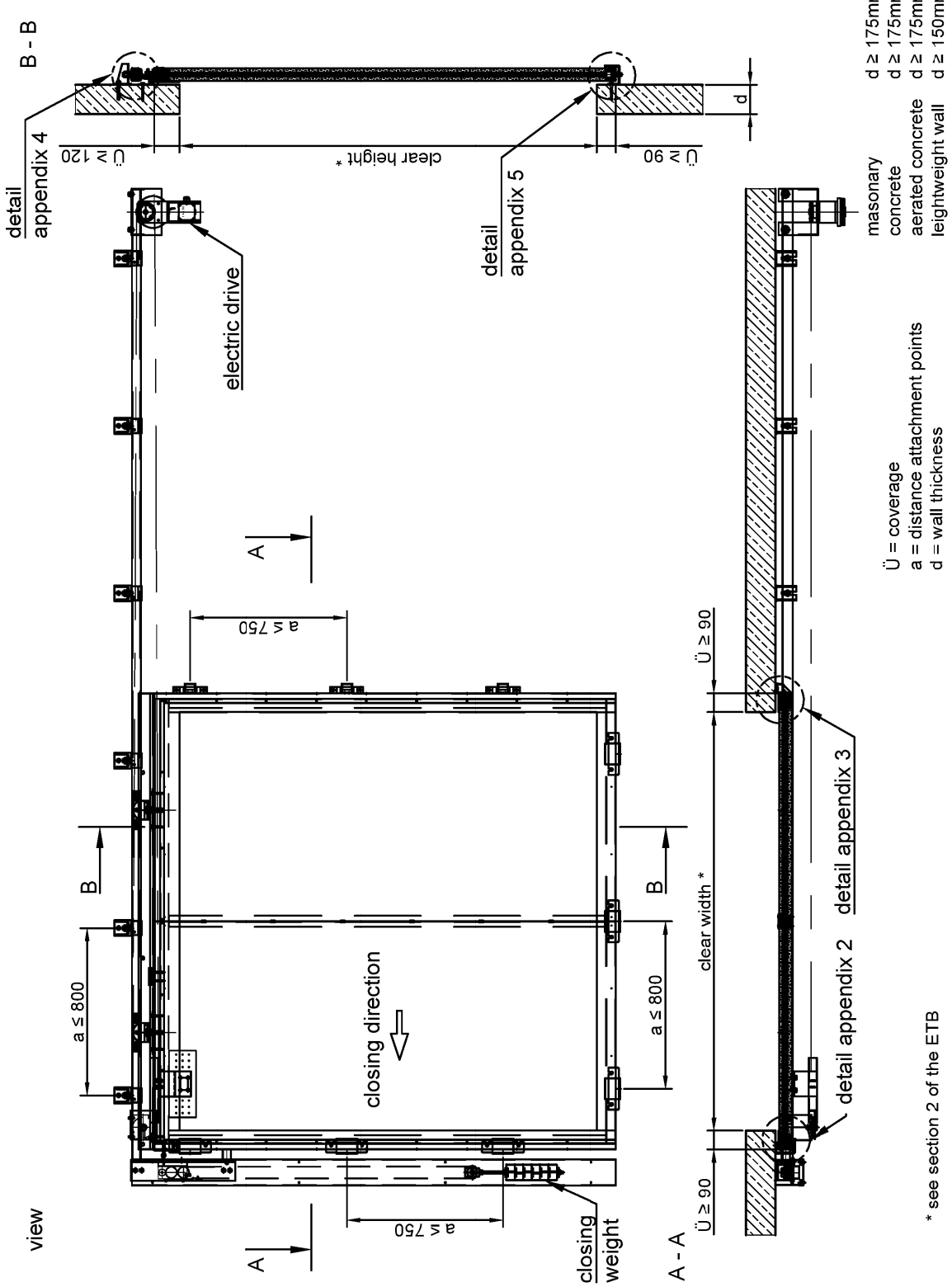
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

The manufacturer provides installation instructions and maintenance instructions for every kit "Vulcanus". The maintenance instructions clearly indicate which work is to be performed to ensure that the installed closure system continues to perform its task after long-term use.
The manufacturer shall provide instructions on processing, packaging, transport, storage and use, maintenance and repair of the construction product.

Issued in Berlin on 26 August 2020 by Deutsches Institut für Bautechnik

Dr.-Ing. Karsten Kathage
Vice President

beglaubigt:
Biedermann



"Vulcanus"	
Overview Closing direction horizontally, single-leaf	Annex 1

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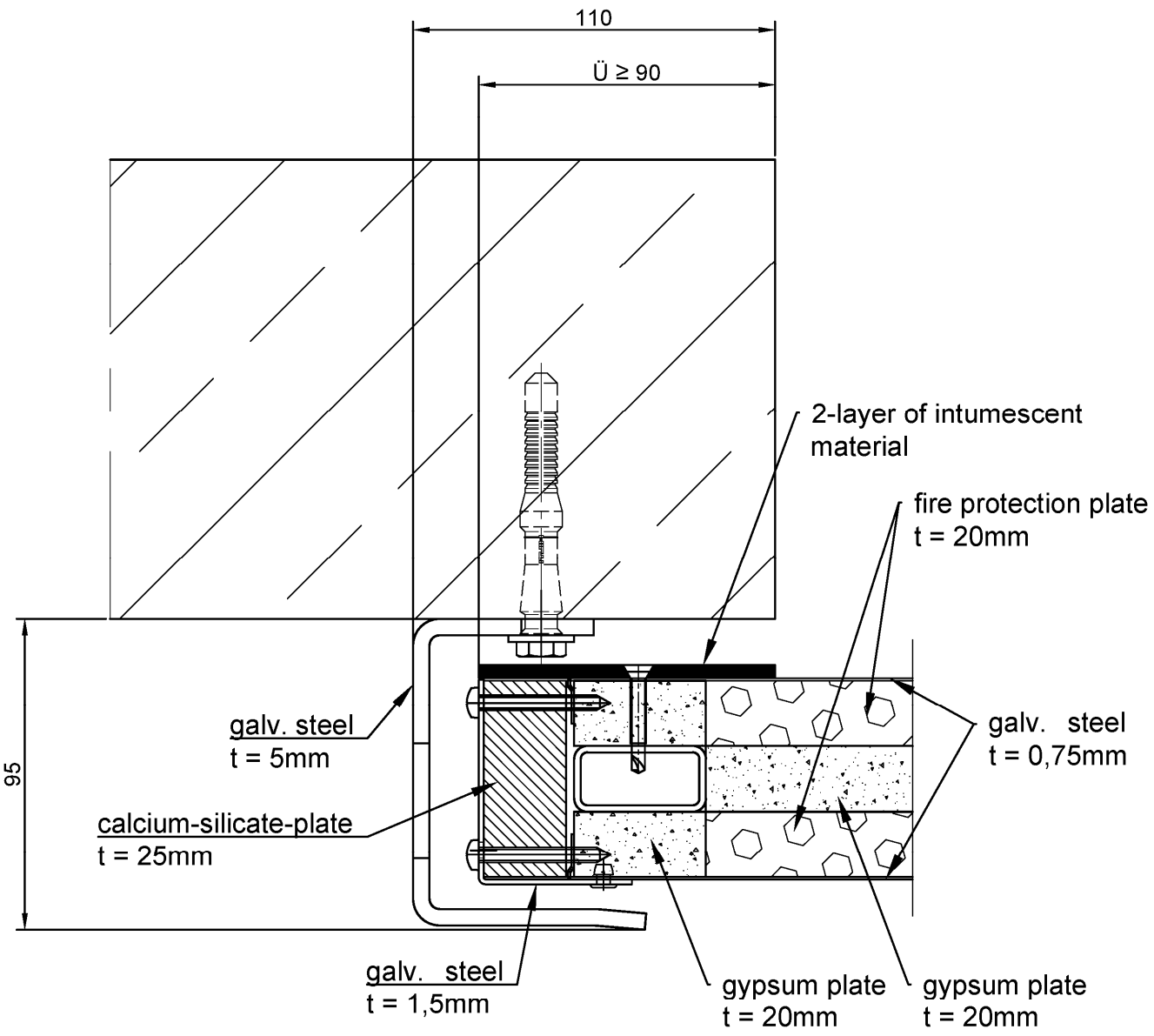

Ü = coverage

"Vulcanus"	Annex 2
Detail opening flank Horizontal closing direction, single-leaf	

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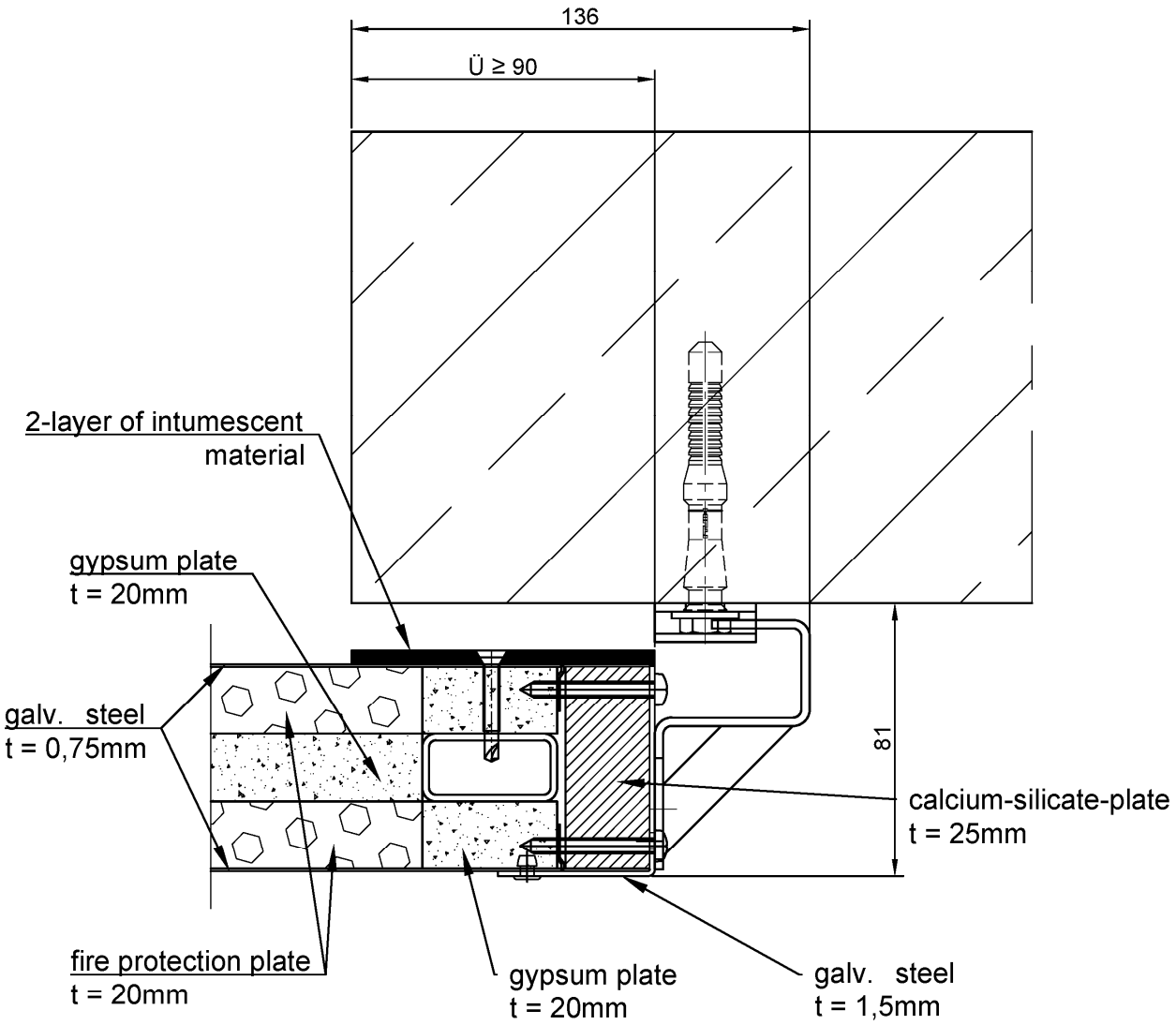

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"Vulcanus"	Annex 3
Detail closing flank Horizontal closing direction, single-leaf	

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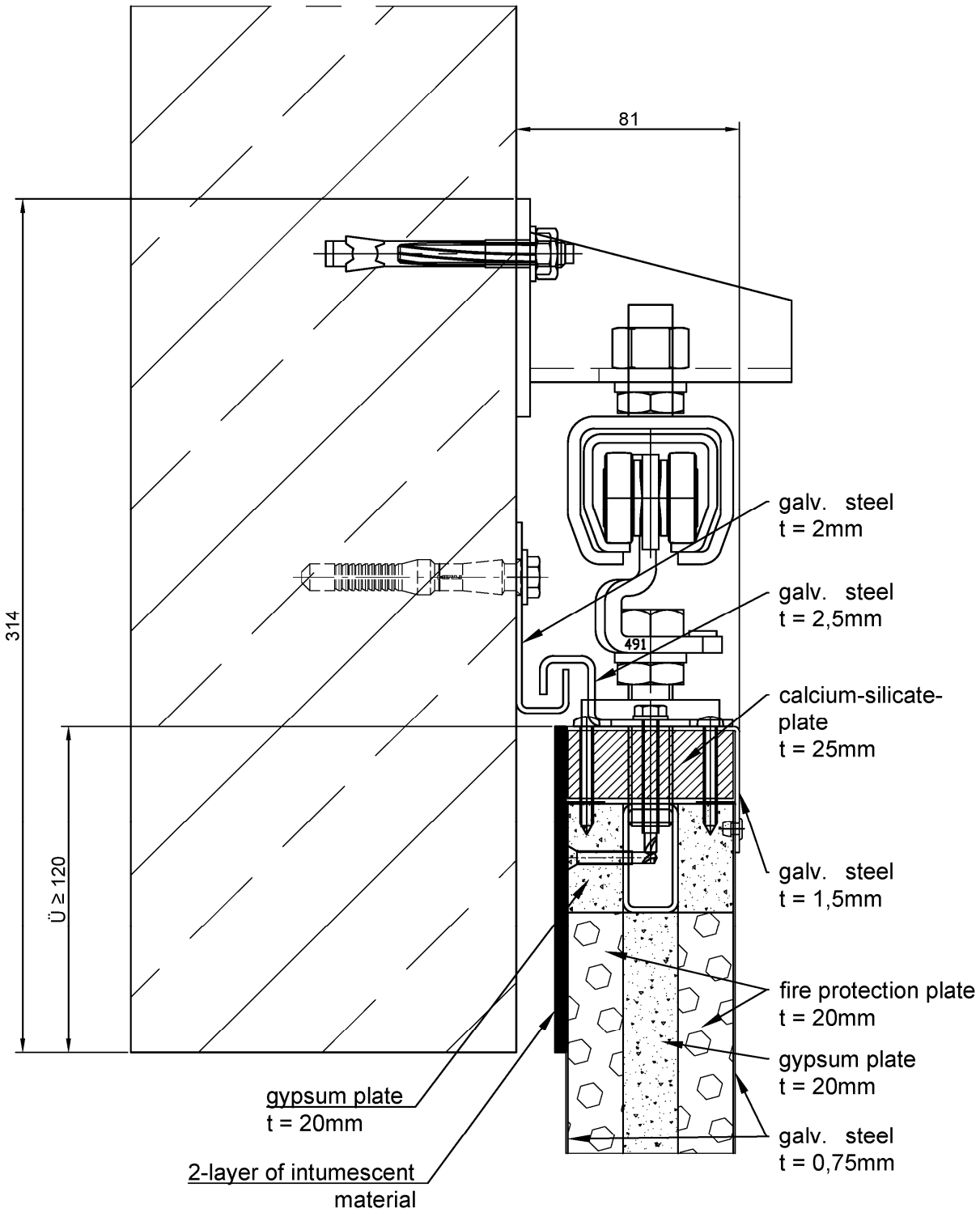
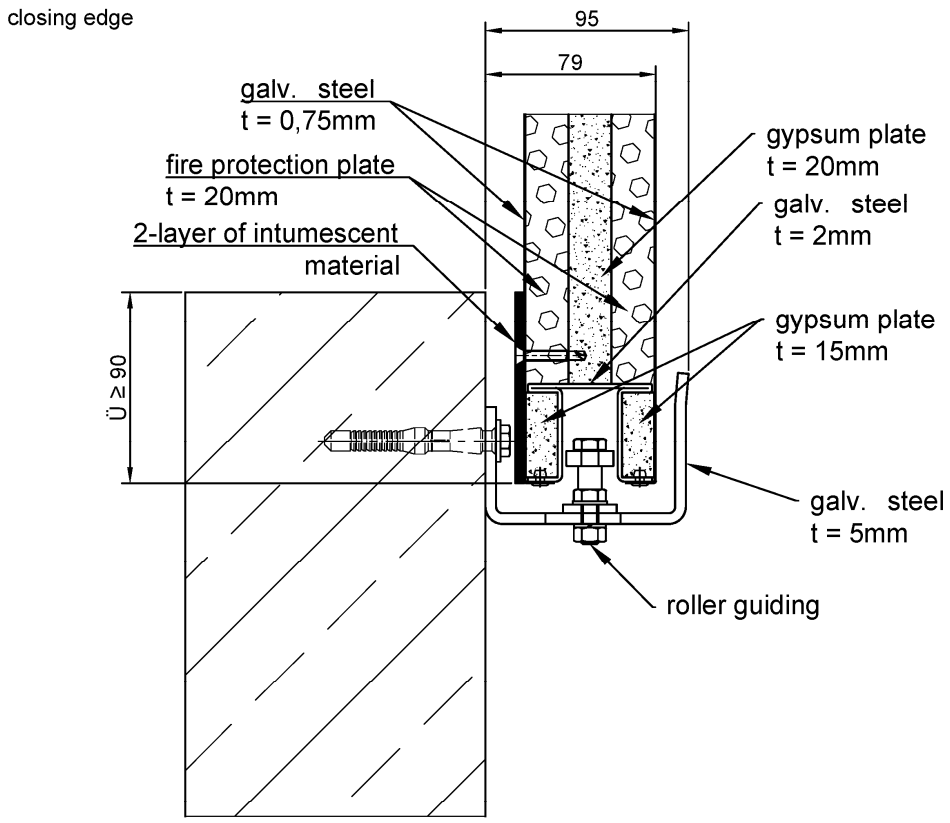
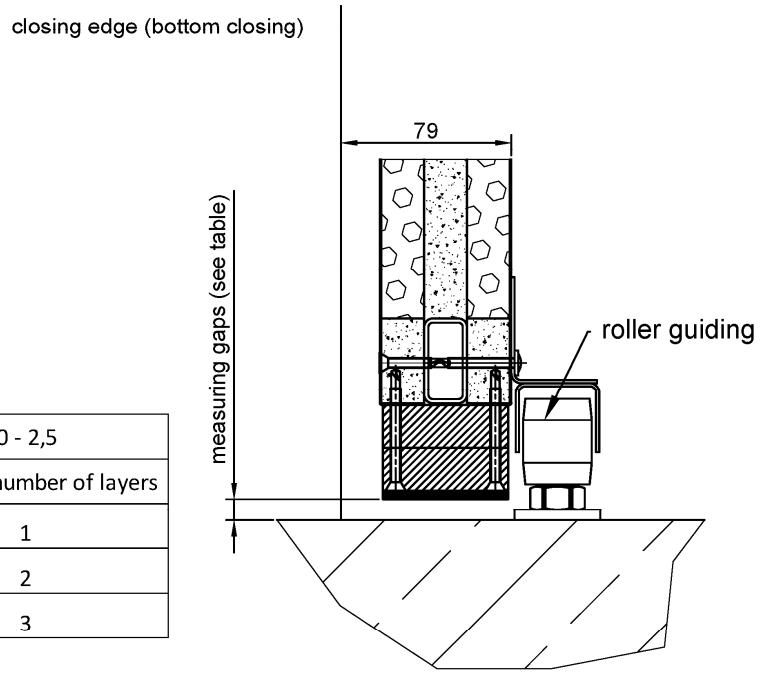


Ü = coverage

"Vulcanus"	Annex 4
Detail running rail / upper coverage Horizontal closing direction, single-leaf	





intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

Ü = coverage

"Vulcanus"

Detail roller guiding / lower overlap
Horizontal closing direction

Annex 5

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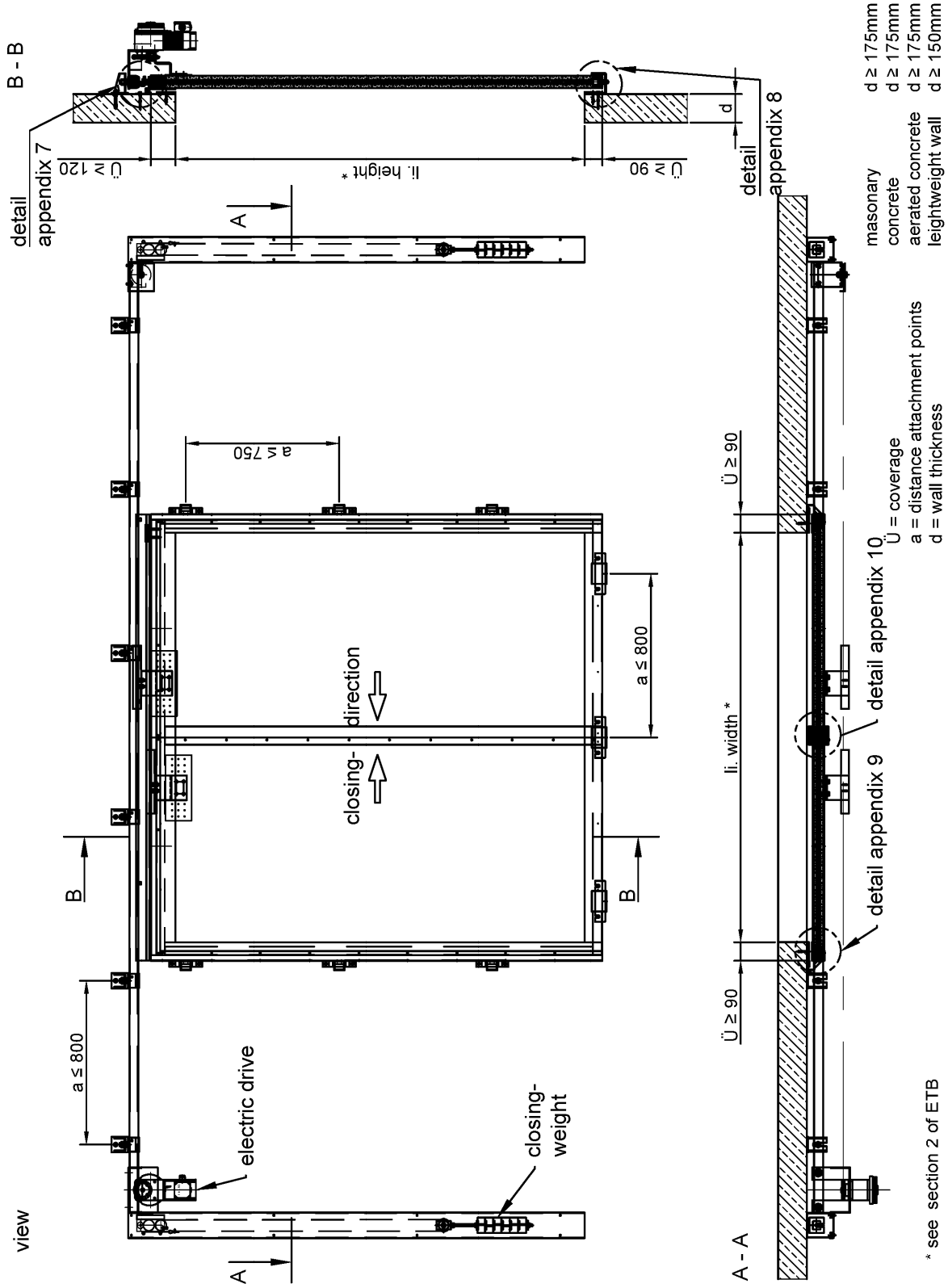

"Vulcanus"	
Overview Closing direction horizontally, double-leaf	Annex 6

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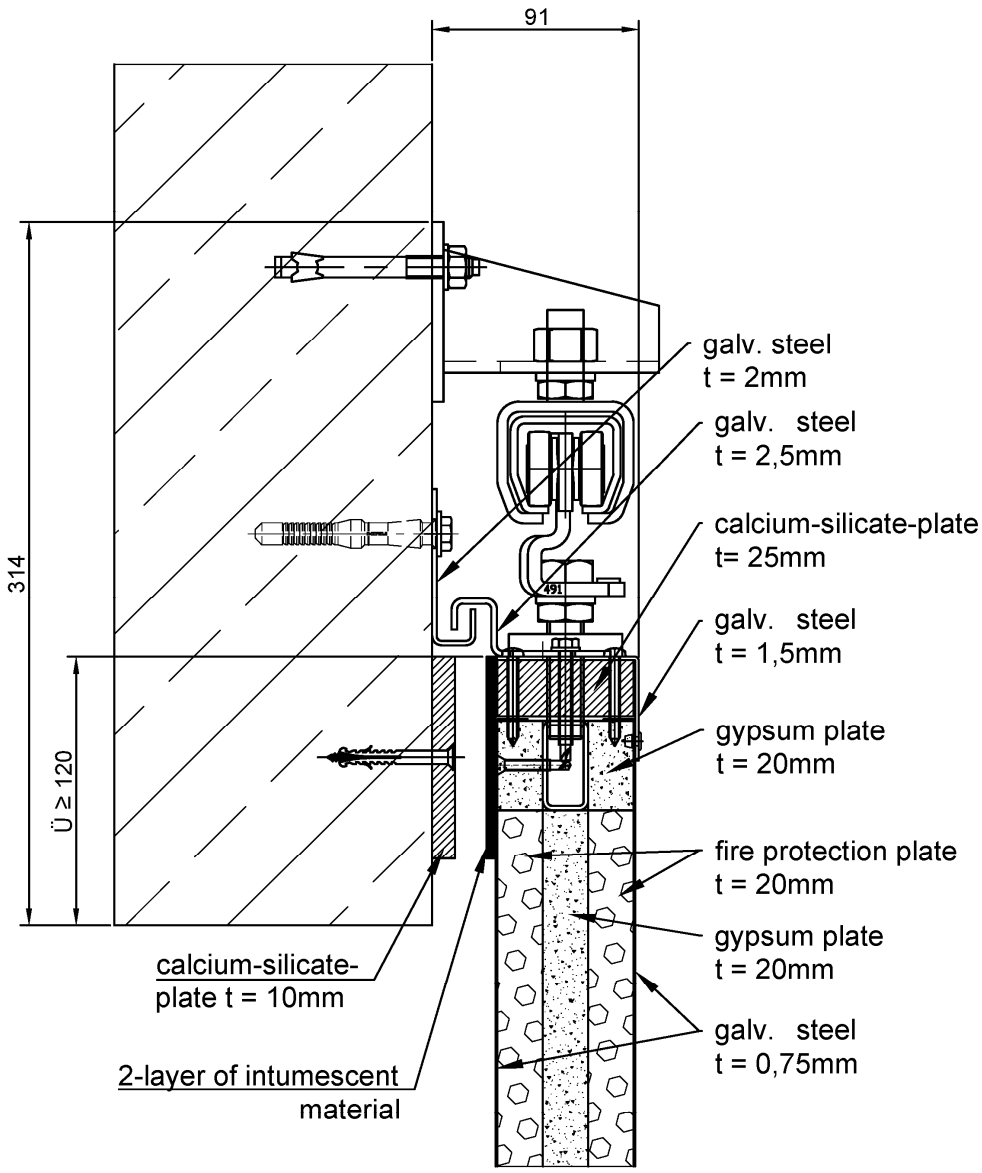

Ü = coverage

"Vulcanus"	Annex 7
Detail running rail / upper overlap Horizontal closing direction, double-leaf	

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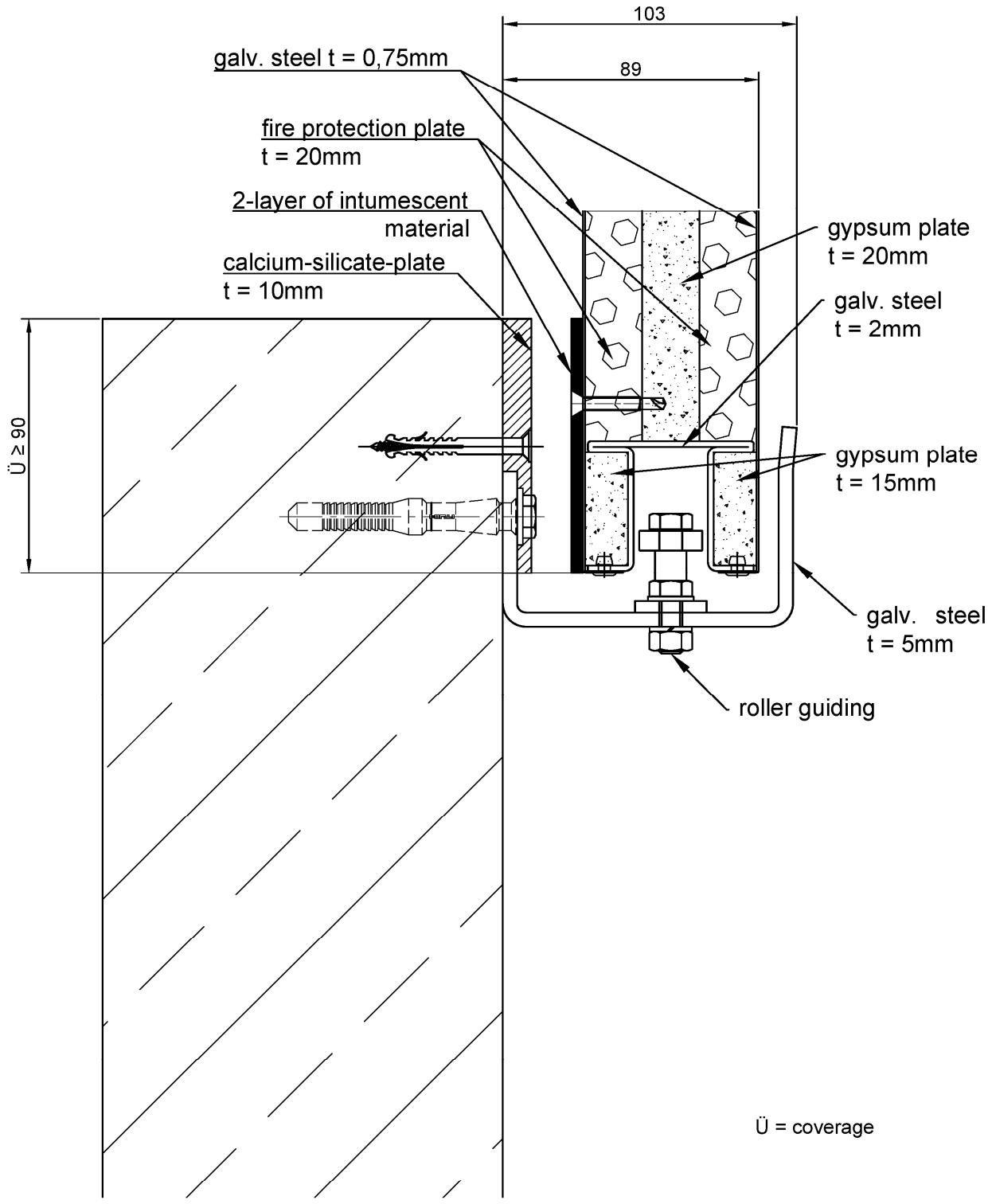
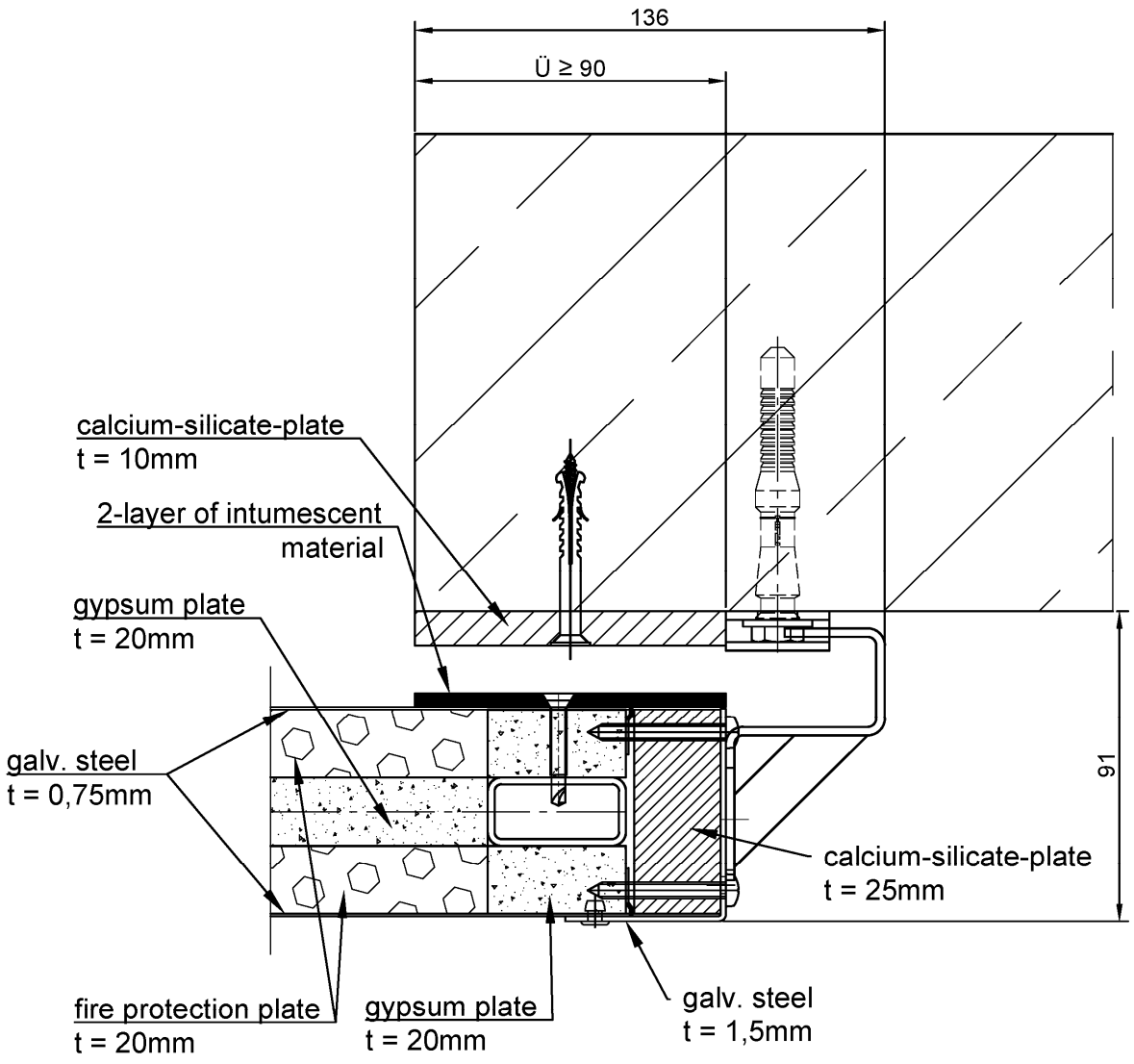


"Vulcanus"	Annex 8
Detail roller guiding / lower overlap Horizontal closing direction	



"Vulcanus"	Annex 9
Detail closing flank Horizontal closing direction, double-leaf	

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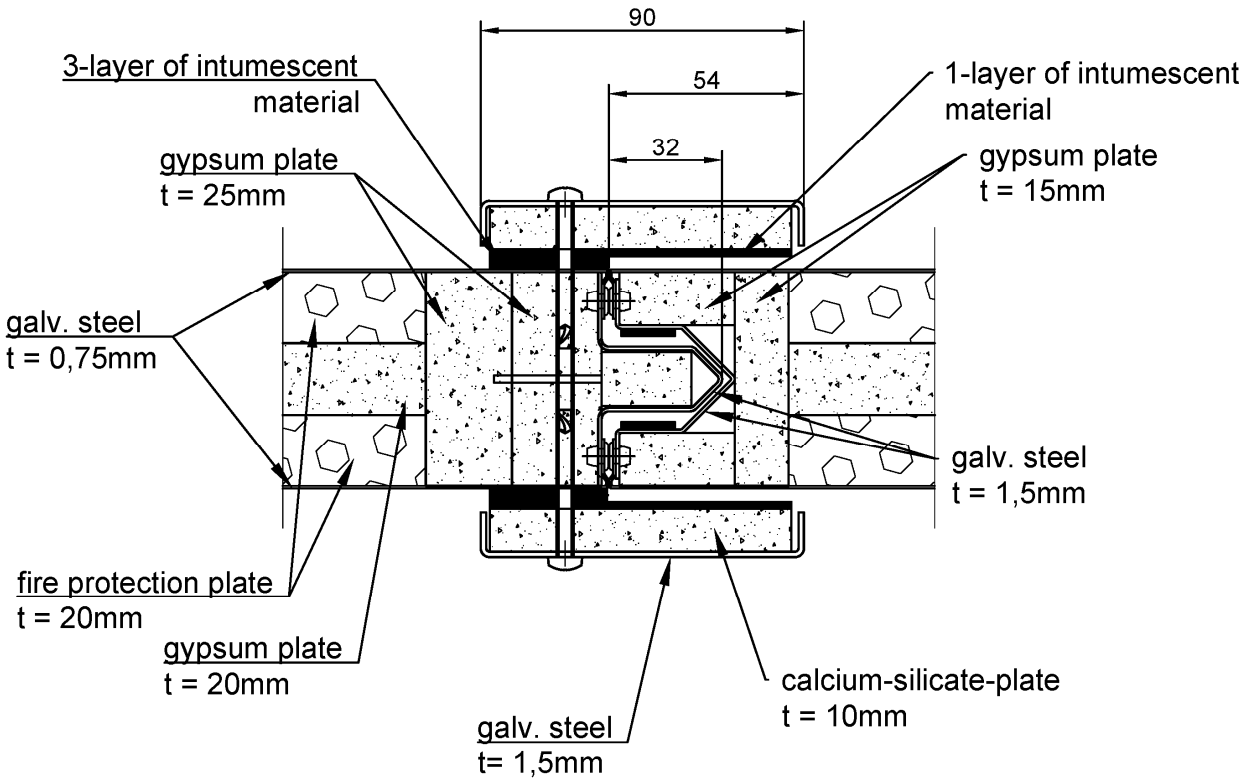

"Vulcanus"	Annex 10
Detail middle section Horizontal closing direction, double-leaf	

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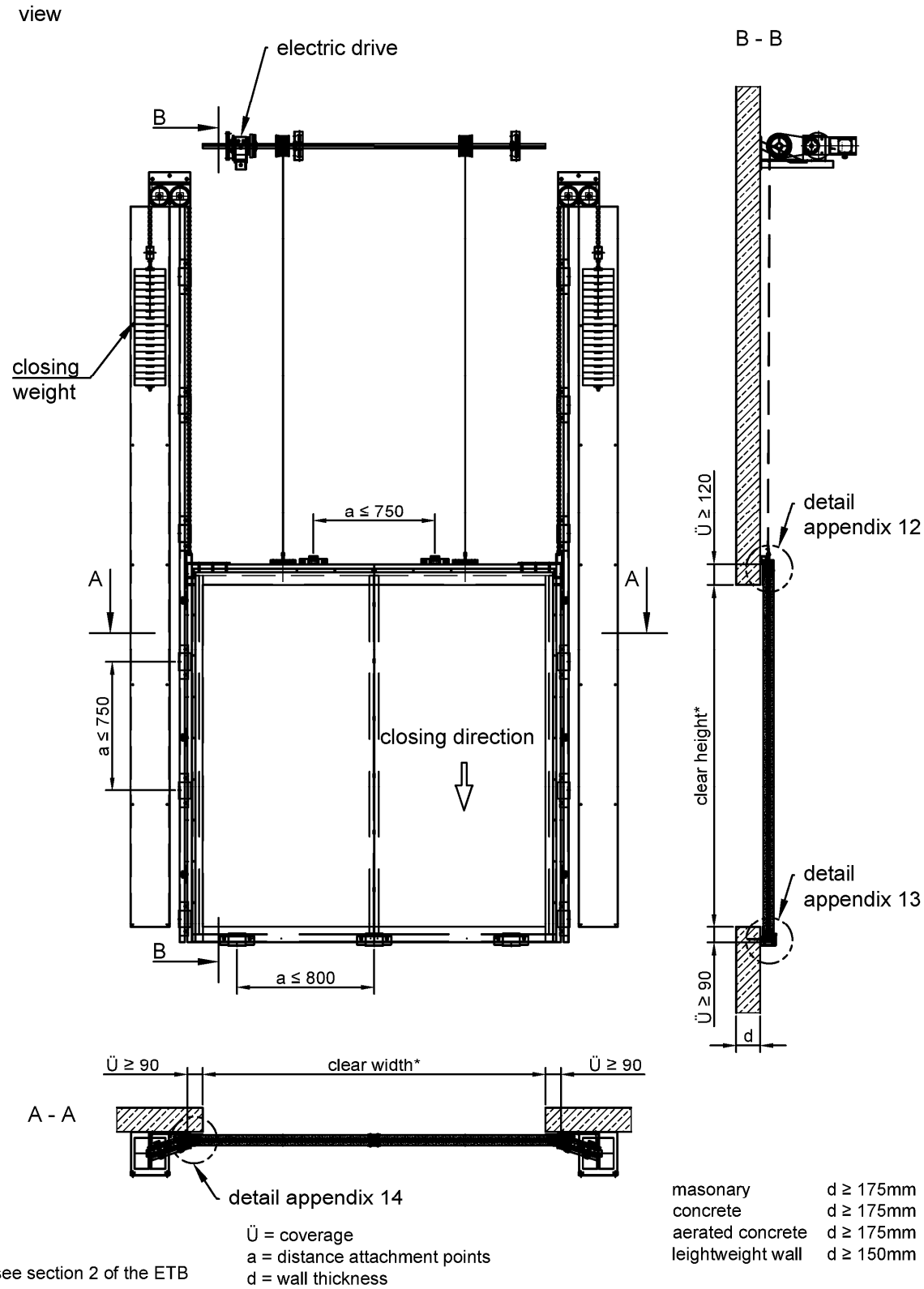

masonary	d ≥ 175mm
concrete	d ≥ 175mm
aerated concrete	d ≥ 175mm
leightweight wall	d ≥ 150mm

Ü = coverage
a = distance attachment points
d = wall thickness

* see section 2 of the ETB

"Vulcanus"	Annex 11
Overview Vertical closing direction from top to down	

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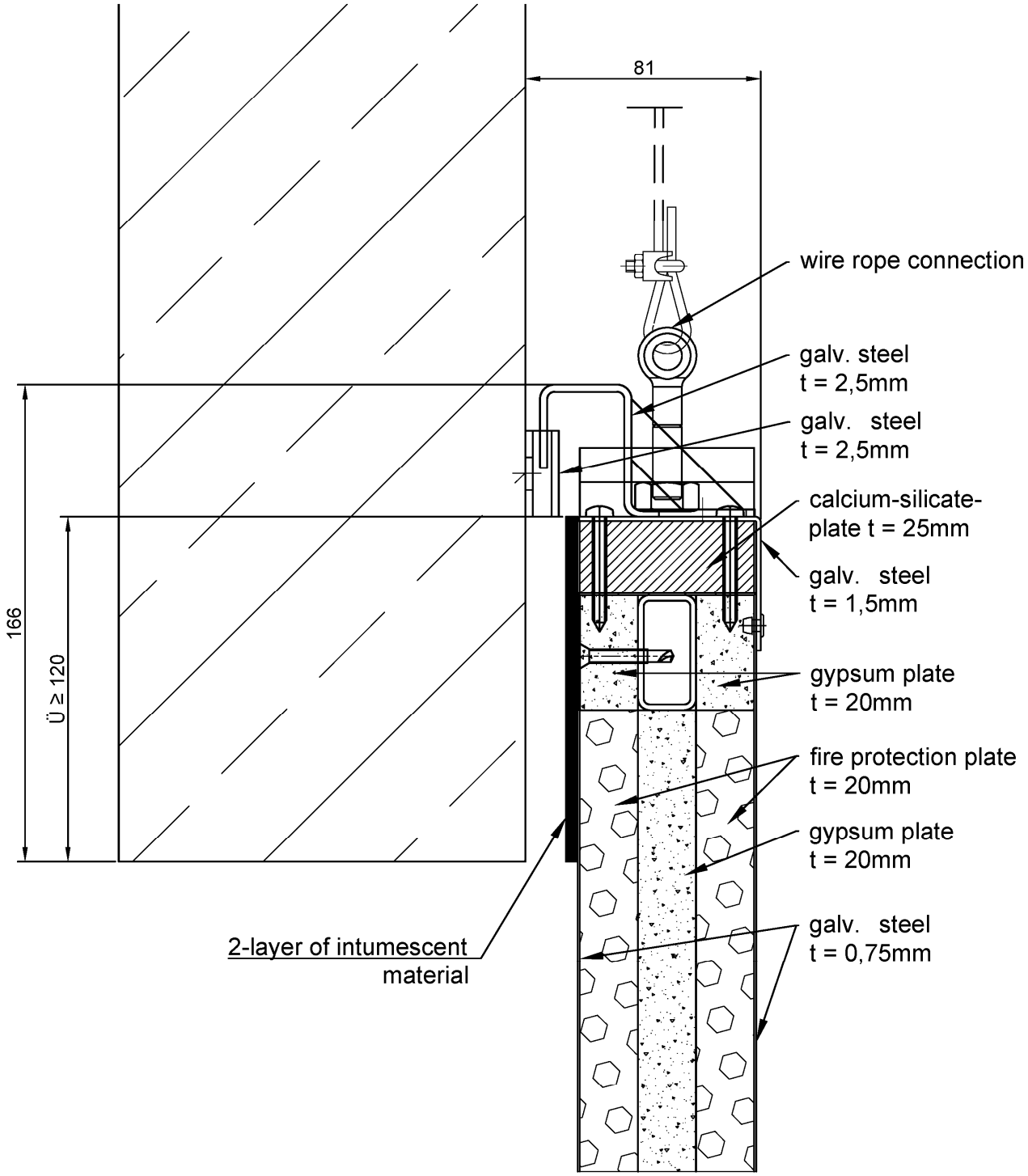
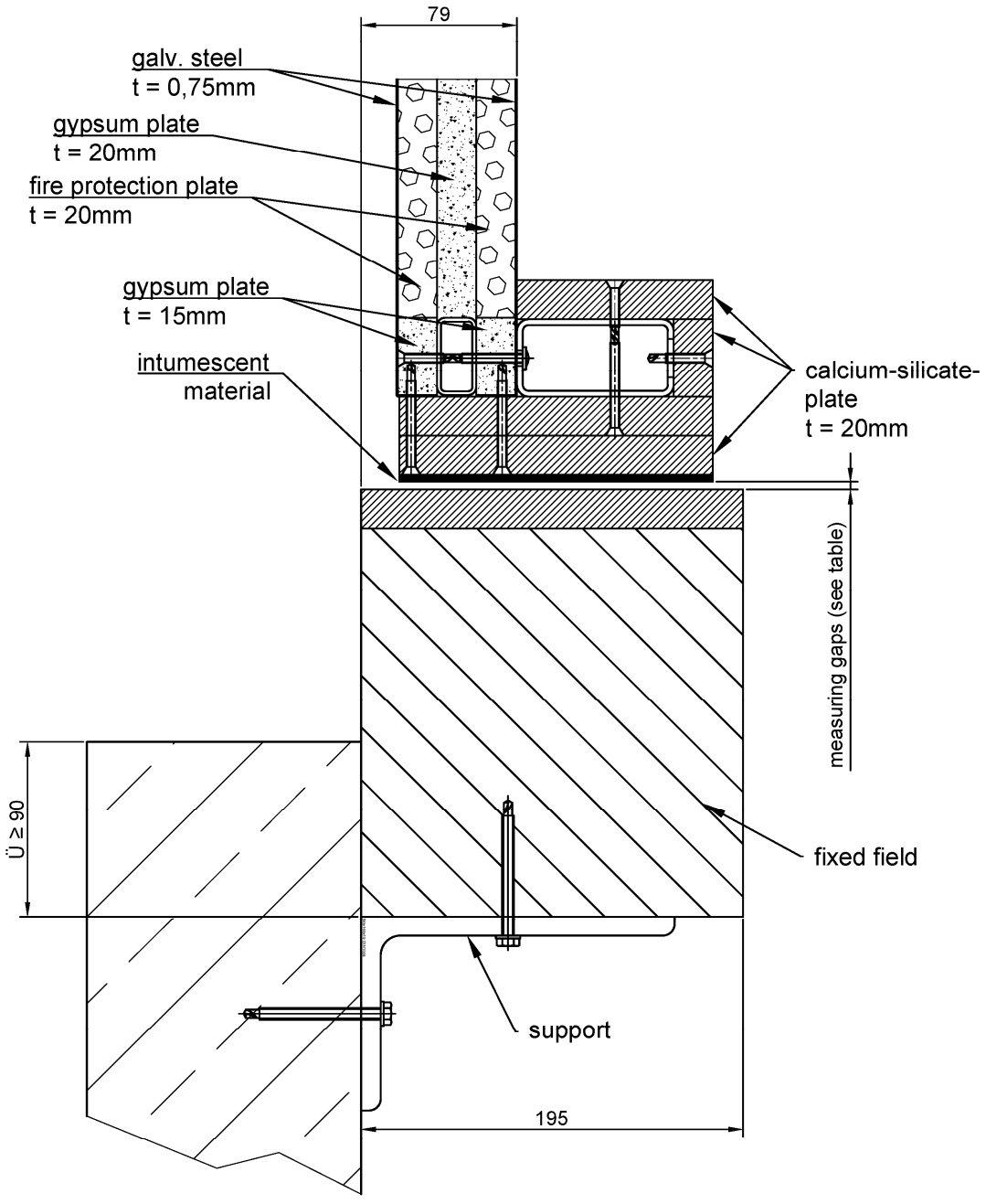


"Vulcanus"	Annex 12
Detail upper overlap Vertical closing direction from top to down	



intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

Ü = coverage

"Vulcanus"	Annex 13
Detail lower overlap Vertical closing direction from up to down	

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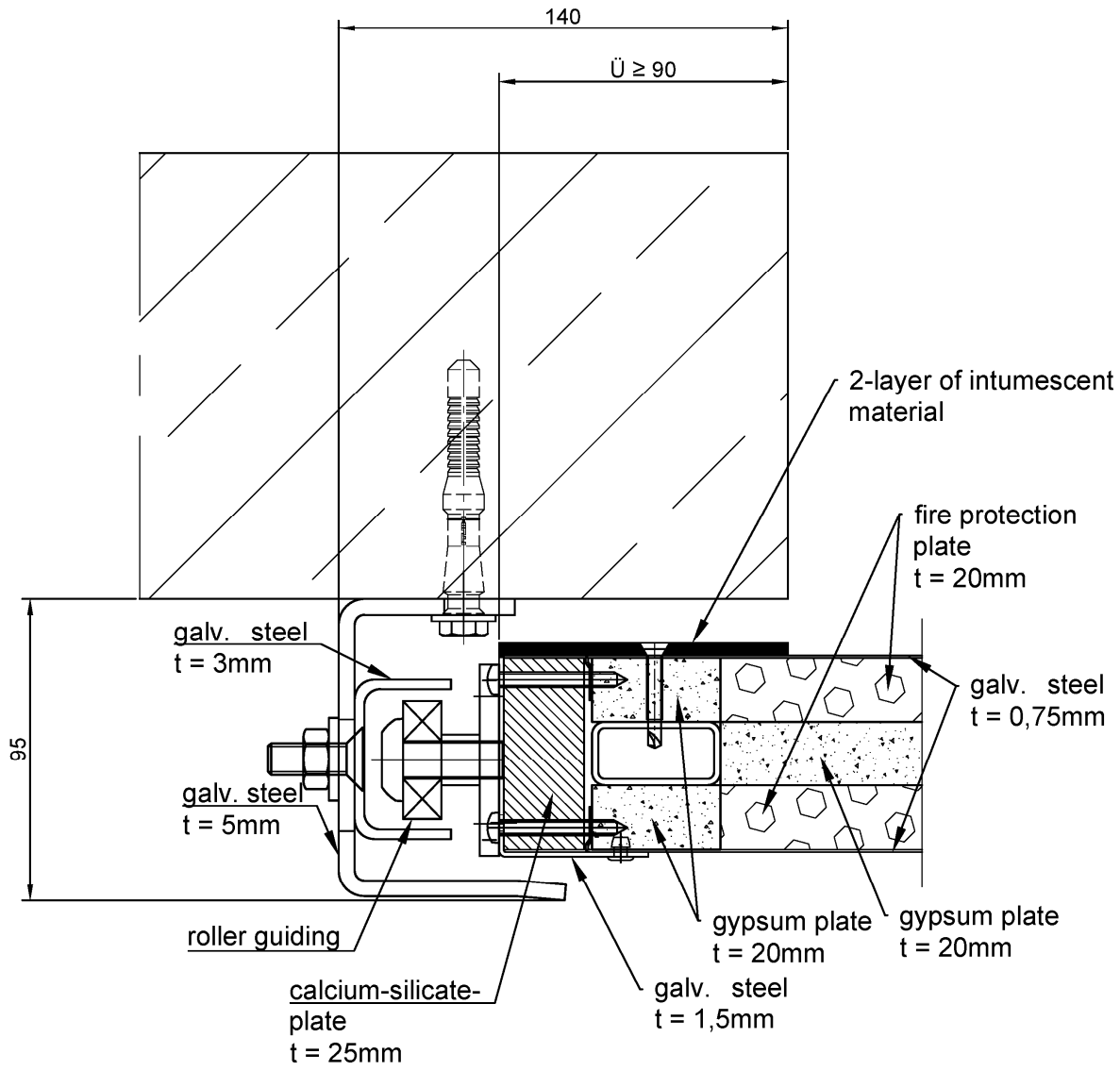

Ü = coverage

"Vulcanus"	Annex 14
Detail lateral overlap Vertical closing direction from up do down	

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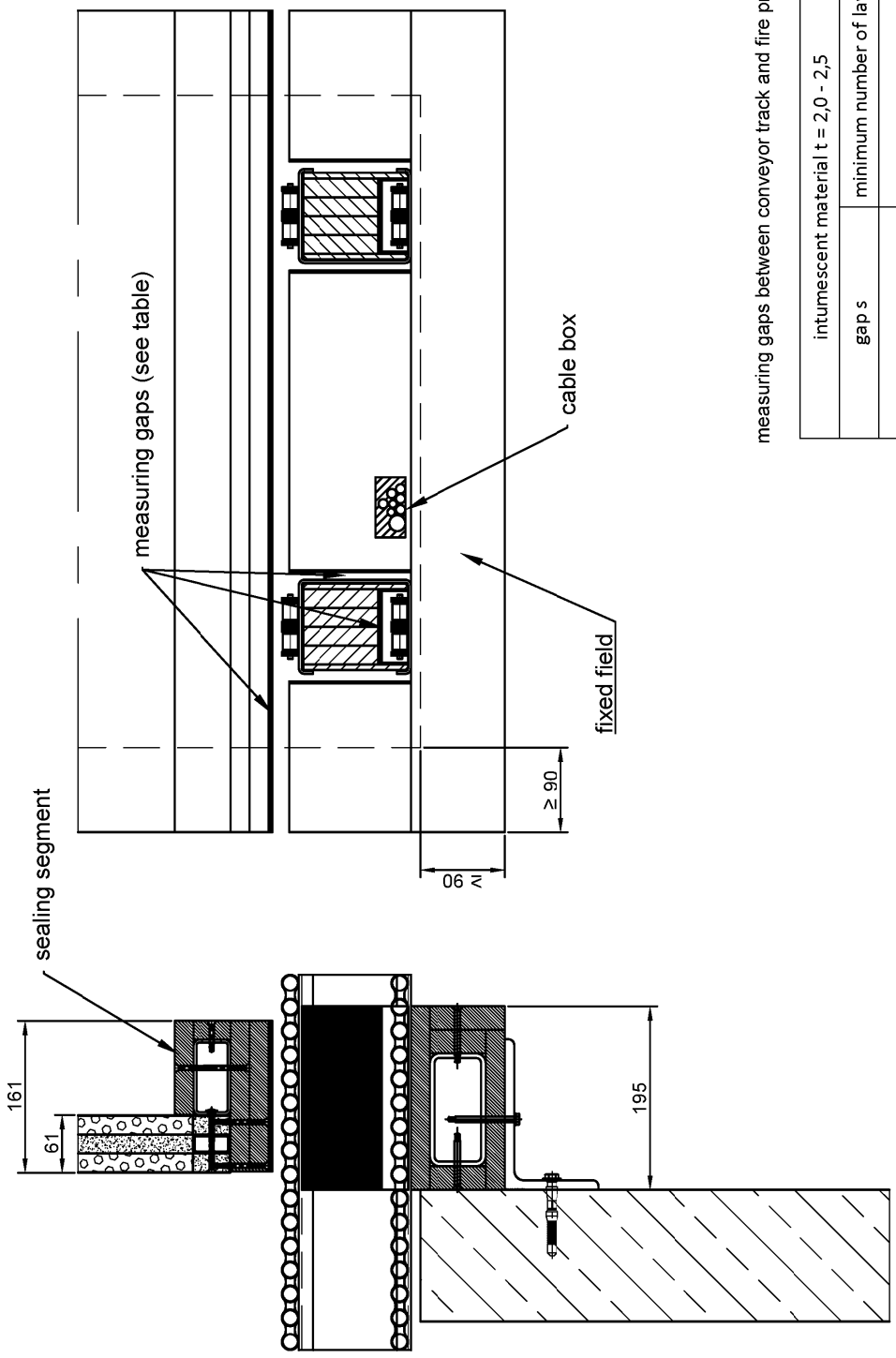


measuring gaps between conveyor track and fire protection closure

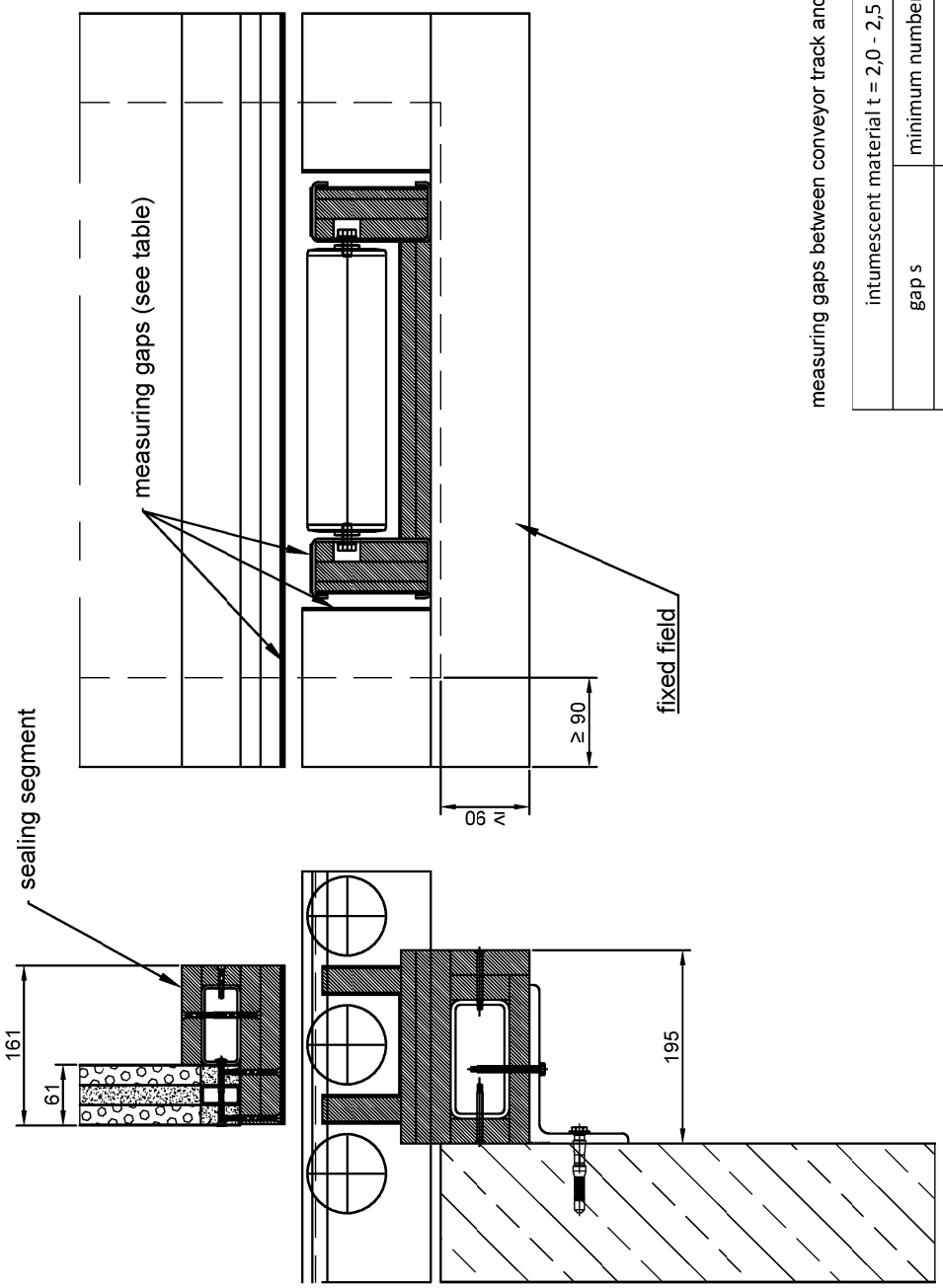
intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

"Vulcanus"

Closing edge
Chain conveyor

Annex 15

Deutsches Institut für Bautechnik DIBt



measuring gaps between conveyor track and fire protection closure

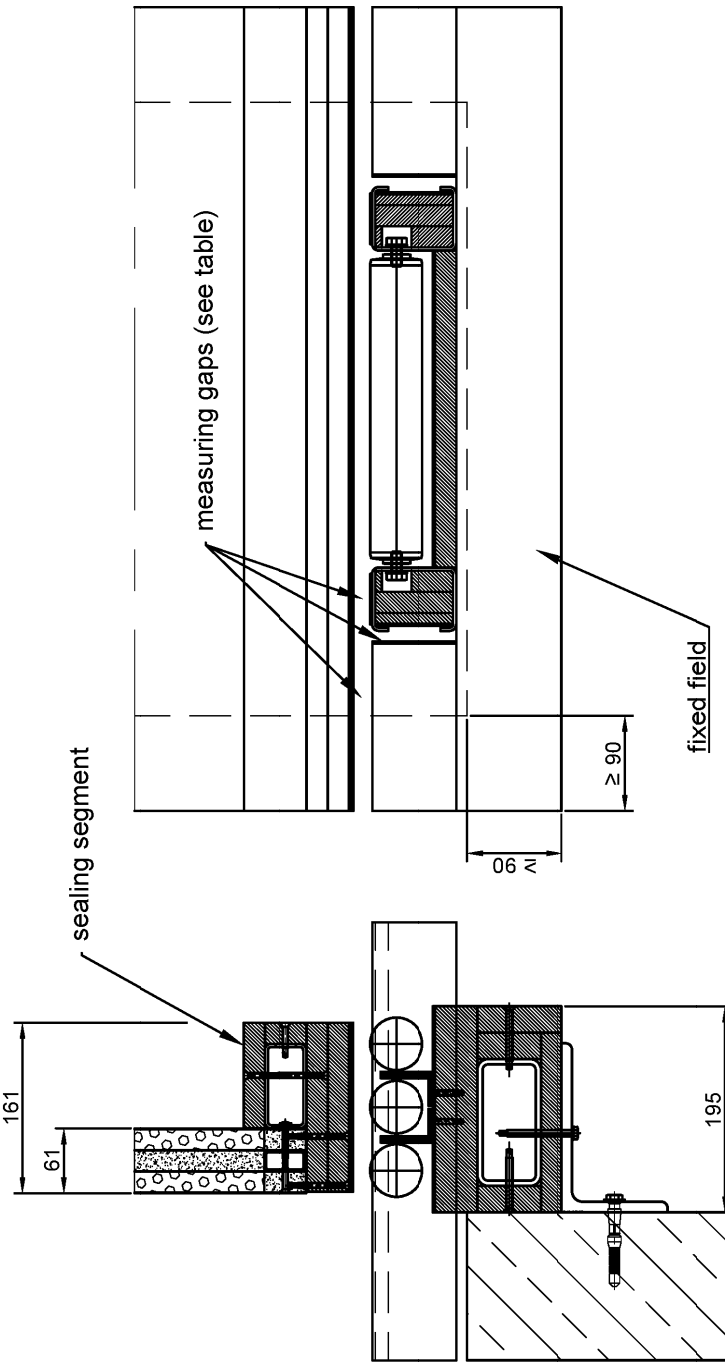
intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

"Vulcanus"

Closing edge
Roller conveyor

Annex 16

Deutsches Institut für Bautechnik DIBt



measuring gaps between conveyor track and fire protection closure

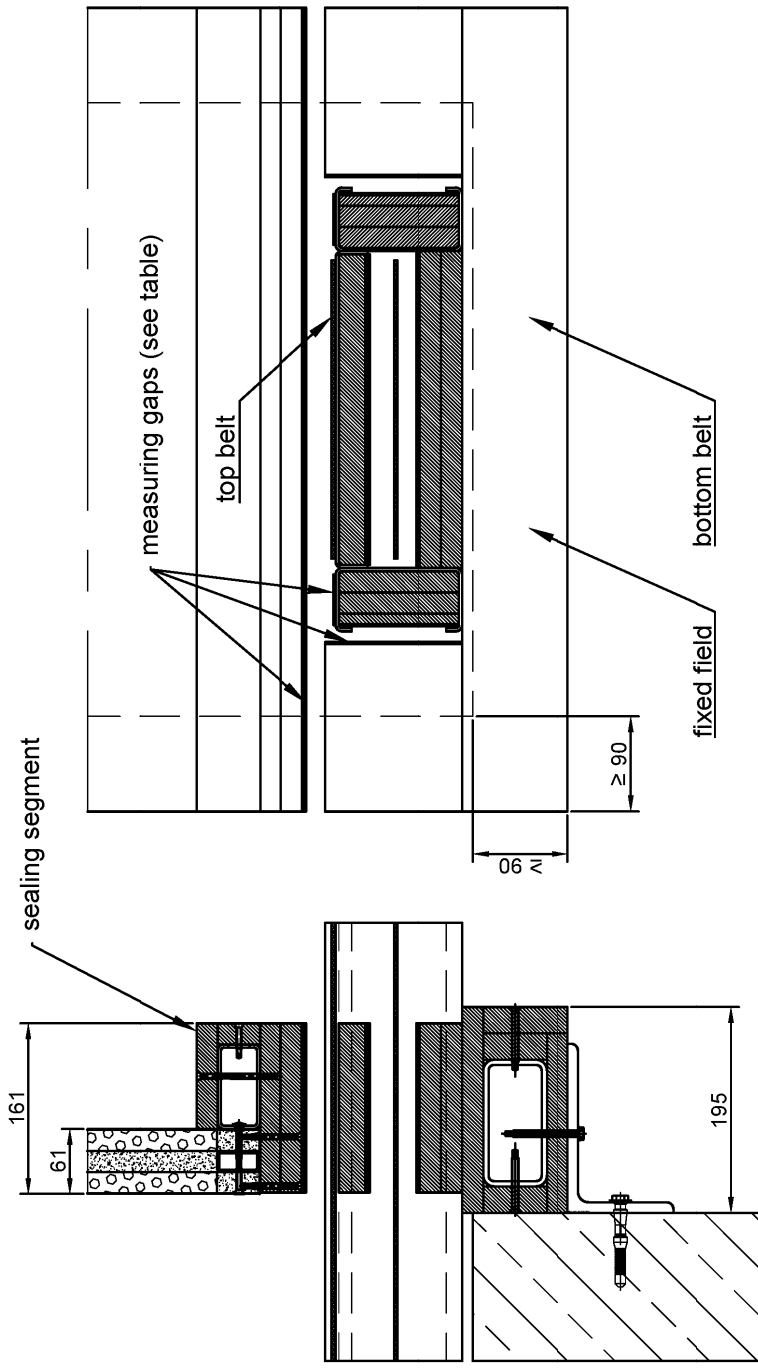
intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

"Vulcanus"

Closing edge
Roller conveyor

Annex 17

Deutsches Institut für Bautechnik DIBt



measuring gaps between conveyor track and fire protection closure

intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 -20	2
20 - 30	3

"Vulcanus"

Closing edge
Belt conveyor

Annex 18

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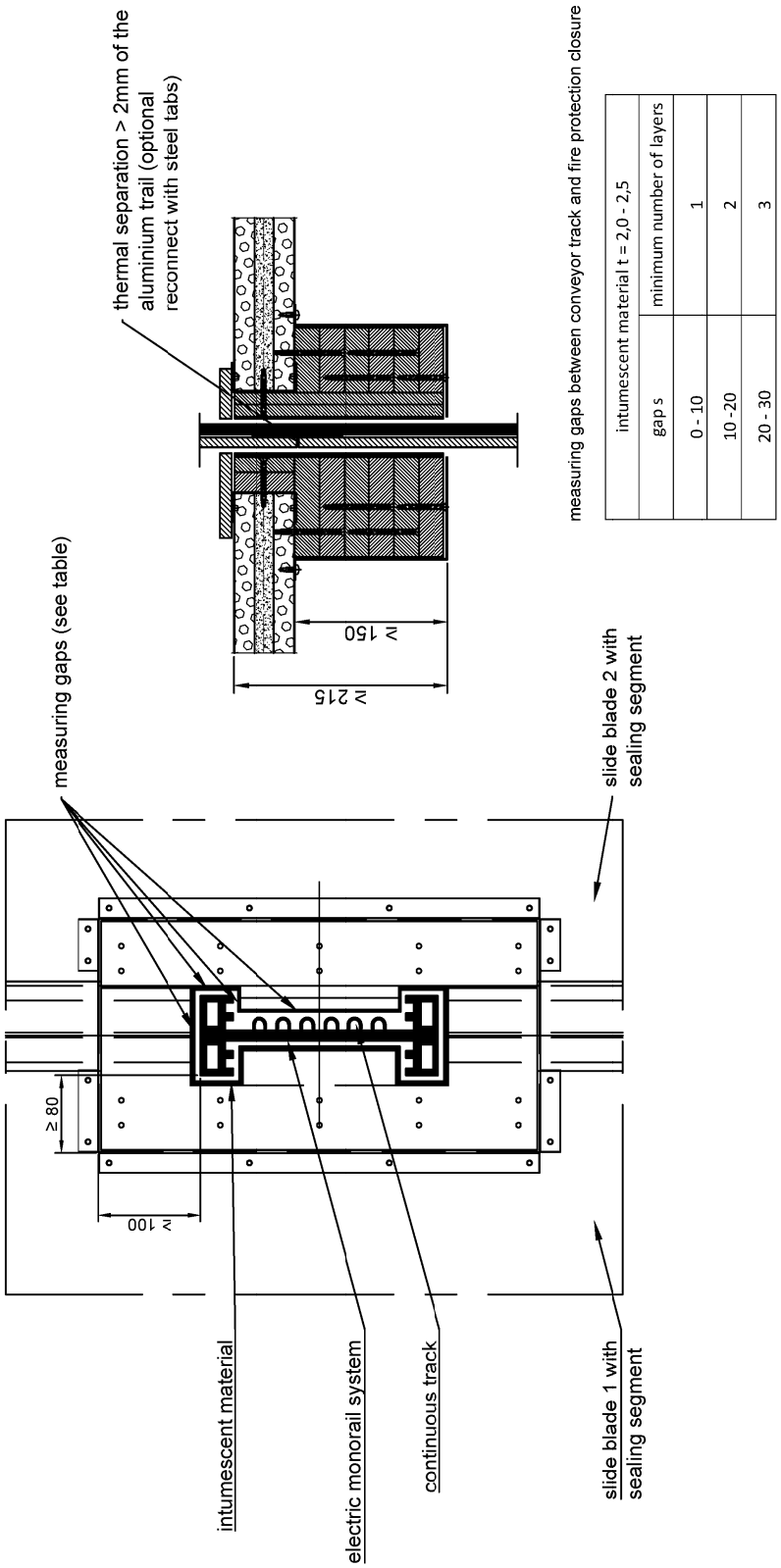

intumescent material t = 2,0 - 2,5	
gap s	minimum number of layers
0 - 10	1
10 - 20	2
20 - 30	3

"Vulcanus"

Closing edge
electro suspension track

Annex 19

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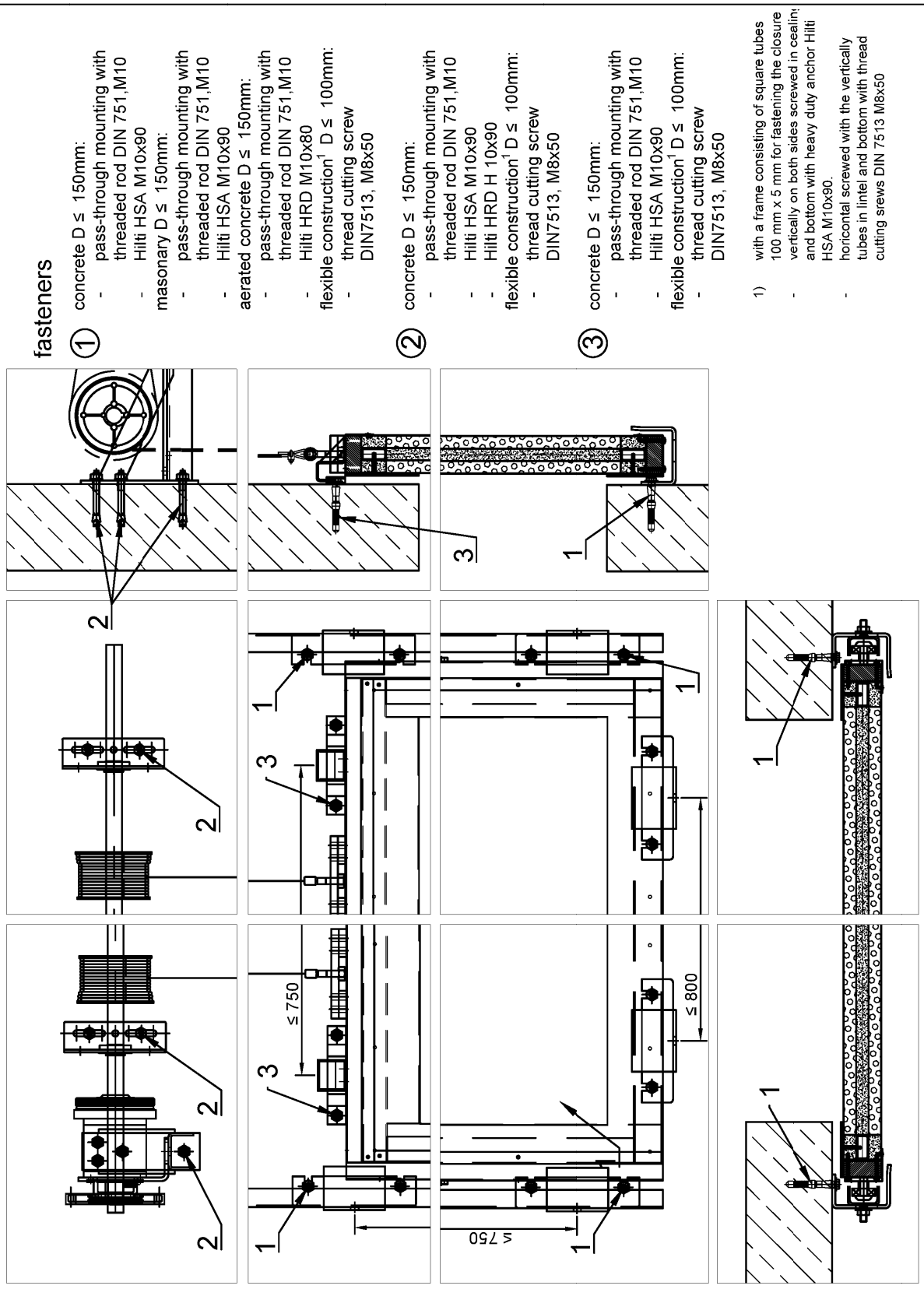

"Vulcanus"	
Manner of fastening Vertical closing direction	Annex 20

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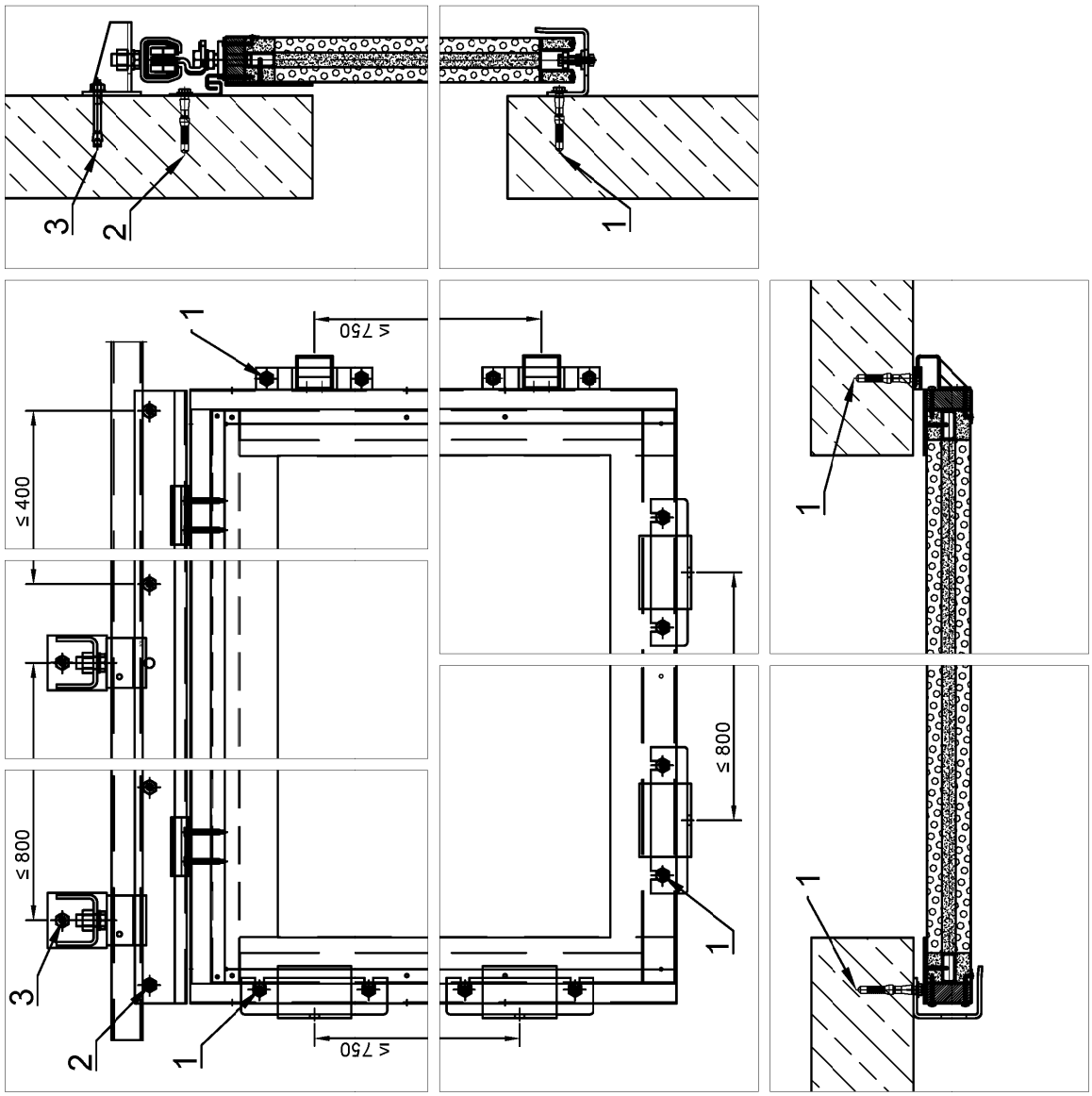

"Vulcanus"	
Manner of fastening Horizontal closing direction	Annex 21