

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-13/0922  
of 26 June 2018

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Trade name of the construction product

Product family  
to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment  
contains

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

Deutsches Institut für Bautechnik

FLAMRO Variant N II A / FLAMRO Variant N III A

pipe collar

FLAMRO  
Brandschutz Systeme GmbH  
Am Sportplatz 2  
56291 Leiningen  
DEUTSCHLAND

Factory E

12 pages including 8 annexes which form an integral part  
of this assessment

EAD 350454-00-1104

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## Specific Part

### 1 Technical description of the product

"FLAMRO Variant N II A / FLAMRO Variant N III A" is a pipe collar consisting of a pipe collar enclosure and a fire-protective inlay.

The pipe collar enclosure is made of sheet steel and needs to be sufficiently protected against corrosion. The fire-protective inlay is made of an intumescent material, which expands under heat exposure.

The pipe collar has the dimensions given in Annexes 2 to 4.

A detailed technical description of the fire safety related performance criteria for the construction products is given in Annexes 1 to 4. Detailed information on the construction product's components is deposited with Deutsches Institut für Bautechnik.

#### NOTE:

The characteristics listed are suitable both for identifying the construction products as well as for performing the manufacturer's factory production control.

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

"FLAMRO Variant N II A / FLAMRO Variant N III A" is intended for use as a component of a pipe penetration seal for plastic pipes.

Pipe penetration seals are used to seal openings in fire-resistant walls and floors, which are penetrated by pipes. Their aim is to preserve the walls' or floors' fire resistance in the area of the penetrations.

This ETA has served to verify the resistance to fire of pipe penetration seals containing two pipe collars (for wall installations) or one pipe collar (for floor installations). The pipe penetration seals also consisted of a seal between the penetrating pipe and the circular edge of the surrounding building component.

More detailed information and data on the verified penetration seals are given in annexes 5 to 8. The construction product "FLAMRO Variant N II A / FLAMRO Variant N III A" may be used for penetration seals of use category X (outdoor use – rain, UV light, frost) provided that the other components of the penetration seal meet the durability requirements. The resistance to fire of the penetration seals shall be verified on a case-by case basis.

The performances given in Section 3 apply exclusively to the penetration seals assessed as part of the ETA procedure (e.g. with respect to the design and arrangement of the penetration seals' components as well as the type and position of the services).



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

**3.1 Intended use: use in penetration seals**

**3.2 Safety in case of fire (BWR 2)**

Essential characteristic	Performance
Resistance to fire of a penetration seal containing the product	<p>The resistance to fire depends on the design and installation of the penetration seal and on the other components that make up the penetration seal.</p> <p>More details on the tested penetration seals and the related fire resistance classes are given in Annexes 1 to 8.</p>

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

In accordance with European Assessment Document (EAD) no. 350454-00-1104, the following legal base shall apply: 1999/454/EC.

The system to be applied is: system 1.

**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.

Issued in Berlin on 26 June 2018 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe  
Head of Department

*beglaubigt:*  
Bisemeier

The factory manufactured construction product pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A" consists of a pipe collar steel housing and an insert of an intumescent building material which is incorporated in multiple layers in the pipe collar housing.

**Properties and performance criteria of the components of the construction product "FLAMRO Variant N II A / FLAMRO Variant N III A"**

Component	Description
"Pipe collar housing"	Dimensions: see Annexes 2 to 4 Material: sheet steel Classification of the fire behavior: Class A1 according to the commission decision 96/603/EC (current version)
"Insert"	Dimensions: see Annexes 2 to 4 Material: Intumescent building material according to ETA-10/0117 Classification of the fire behavior according to EN 13501-1: Class E

The properties listed can be used for the identification of the construction product and for the implementation of the factory production control of the manufacturer.

Implementation details for the factory production control are included in the inspection plan.

**Description of the additional components of the tested sealings**

Sealing of the residual joint between pipe collar and soffit: Cement mortar	Material: Cement mortar Classification of the fire behavior: Class A1 according to the commission decision 96/603/EC (in the current version)
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**Performance of penetration seals, comprising the construction product "FLAMRO Variant N II A / FLAMRO Variant N III A"**

	Essential requirement	Test method	Construction of the sample	Performance acc. to EN 13501-2
1	Resistance to fire	EN 1366-3	100 mm thick rigid wall; design and layout of the penetration seal according to Annex 5	EI 240-U/C
2	Resistance to fire	EN 1366-3	100 mm thick flexible wall; design and layout of the penetration seal according to Annex 6	EI 120-U/C
3	Resistance to fire	EN 1366-3	300 mm thick rigid floor; design and layout of the penetration seal according to Annex 7	EI 180-U/C bzw. E 240-U/C
4	Resistance to fire	EN 1366-3	150 mm thick floor; design and layout of the penetration seal according to Annex 8	EI 120-U/U

The tested/ illustrated seals are only examples for the use.

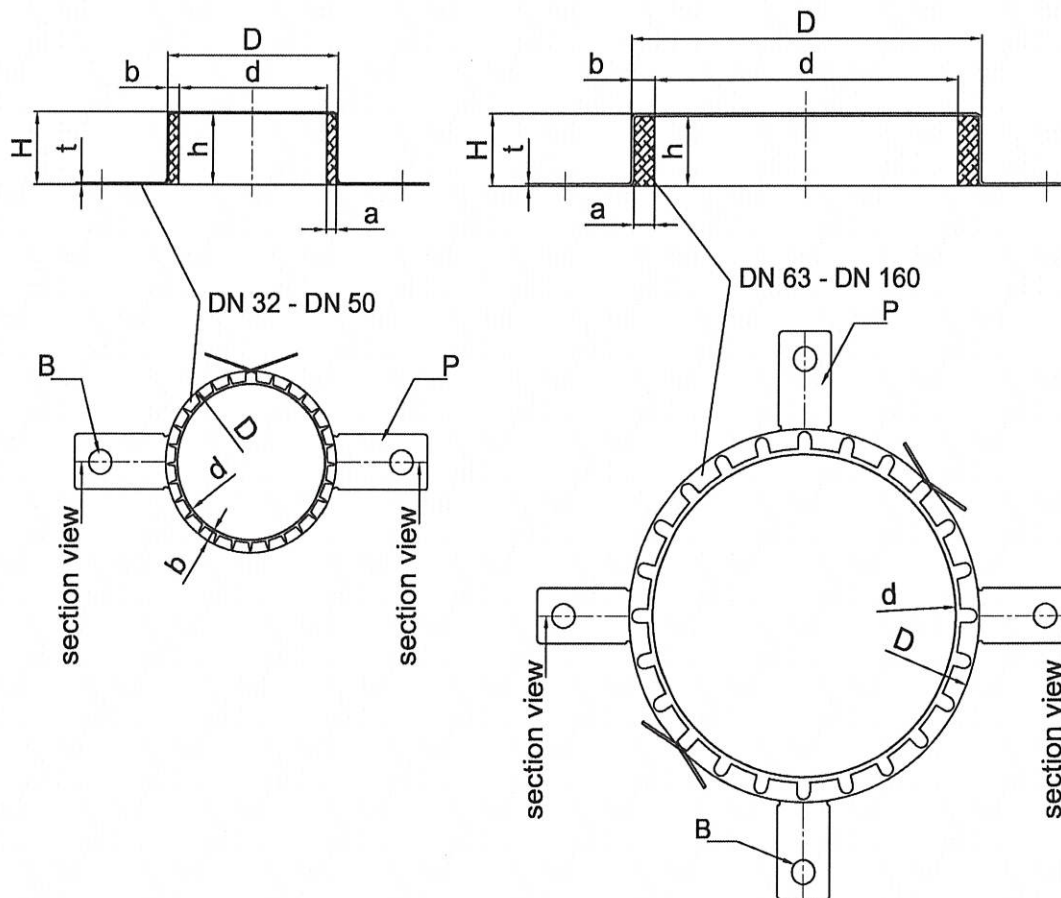
The illustrations are without guarantee for completeness.

The use of the construction product "FLAMRO Variant N II A / FLAMRO Variant N III A" in penetration seals shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer.

FLAMRO Variant N II A / FLAMRO Variant N III A

Description of the construction products, properties and performances

Annex 1



Pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A"  
in the dimensions FLAMRO Variant N III A

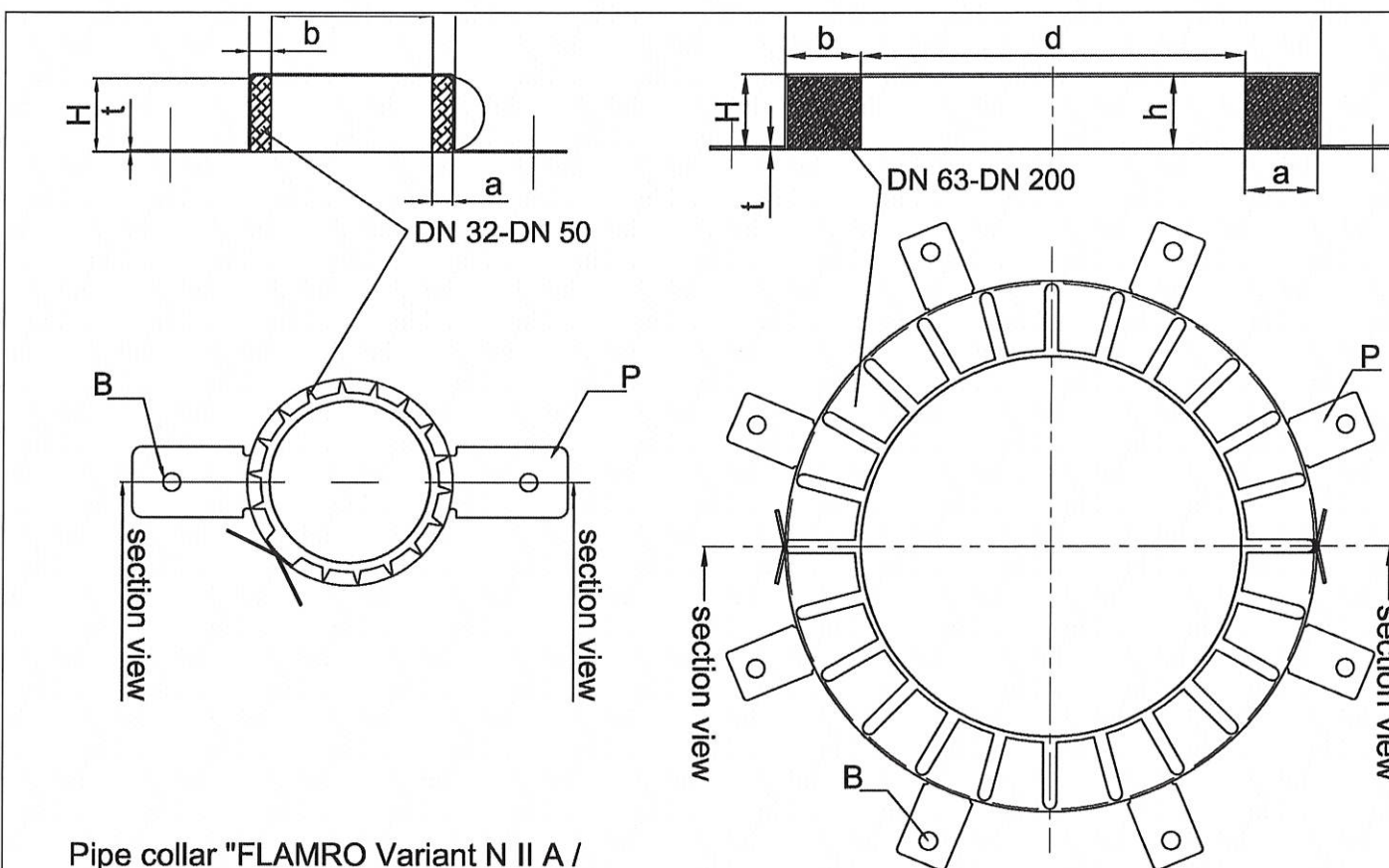
dA [mm]	d [mm]	D [mm]	b [mm]	t [mm]	H [mm]	P [Stck]	h [mm]	a [mm]	B [mm]
32	38	47	4,6	0,6	26,0	2	25,0	4,0 -0/+0,8	9,0
40	46	55	4,6	0,6	26,0	2	25,0	4,0 -0/+0,8	9,0
50	56	65	4,6	0,6	26,0	2	25,0	4,0 -0/+0,8	9,0
63	69	82	6,6	0,6	26,0	4	25,4	6,0 -0/+1,0	9,0
75	81	94	6,6	0,6	26,0	4	25,4	6,0 -0/+1,0	9,0
90	96	114	9,0	1,0	26,6	4	25,4	8,0 -0/+1,5	9,0
110	116	134	9,0	1,0	26,6	4	25,4	8,0 -0/+1,5	9,0
125	132	150	9,0	1,0	26,6	4	38,0	10 -0/+2,0	9,0
140	144	168	12	1,0	40,0	4	38,0	10 -0/+2,0	9,0
160	164	188	12	1,0	40	4	38,0	10 -0/+2,0	9,0

FLAMRO Variant N II A / FLAMRO Variant N III A

Design of the pipe collar in the size FLAMRO Variant N III A

Annex 2





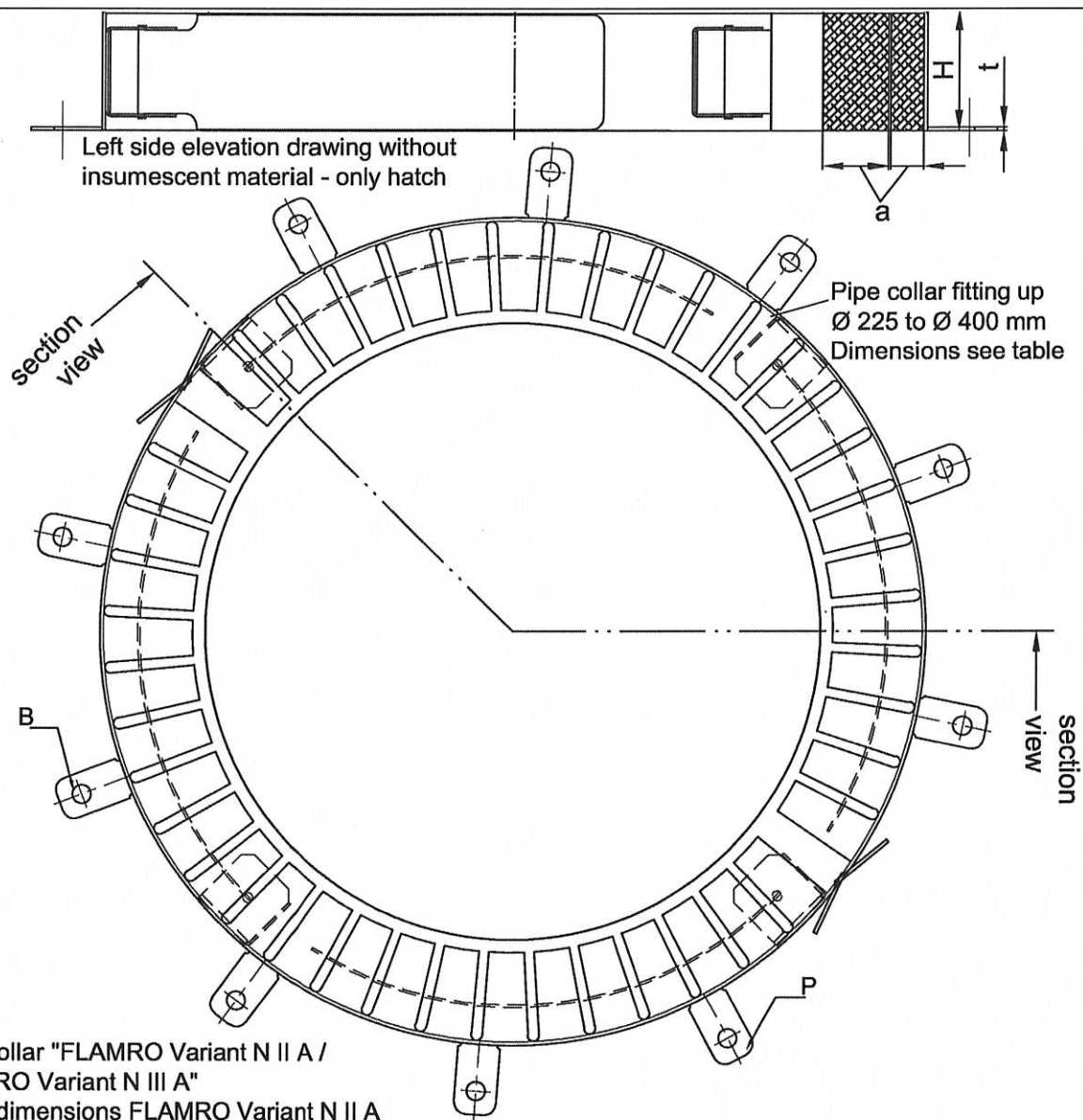
Pipe collar "FLAMRO Variant N II A /  
FLAMRO Variant N III A"  
in the dimensions FLAMRO Variant N II A

dA [mm]	d [mm]	D [mm]	b [mm]	t [mm]	H [mm]	P [Stck]	h [mm]	a [mm]	B [mm]
32	36	50	7,0	0,6	26,0	2	25,4	6,4 $\pm 0,5$	6,0
40	44	58	7,0	0,6	26,0	2	25,4	6,4 $\pm 0,5$	6,0
50	54	68	7,0	0,6	26,0	2	25,4	6,4 $\pm 0,5$	6,0
63	67	94	13,5	0,6	26,0	4	25,4	12,8 $\pm 1,0$	6,0
75	79	106	13,5	0,6	26,0	4	25,4	12,8 $\pm 1,0$	6,0
90	94	132	18,3	1,1	26,6	4	25,4	17,1 $\pm 1,0$	9,0
110	114	155	20,5	1,1	26,6	4	25,4	19,2 $\pm 1,5$	9,0
125	129	172	20,5	1,1	40,0	4	38,1	19,2 -0/+1,5	9,0
140	144	200	28,0	1,1	40,0	4	38,1	25,6 -0/+2,0	9,0
160	164	220	28,0	1,1	40,0	4	38,1	25,6 -0/+2,0	9,0
180	184	264	40,0	1,5	40,0	8	38,1	38,4 $\pm 3,0$	9,0
200	204	284	40,0	1,5	40,0	8	38,1	38,4 $\pm 3,0$	9,0

FLAMRO Variant N II A / FLAMRO Variant N III A

Design of the pipe collar in the size FLAMRO Variant N II A

Annex 3



dA [mm]	d [mm]	D [mm]	b [mm]	t [mm]	H [mm]	P [Stck]	h [mm]	a [mm]	B [mm]
225	239	328	44,5	1,5 / 1,0	51,5	10	50	42,0 ± 3,0	8,0
250	264	353	44,5	1,5 / 1,0	51,5	10	50	42,0 ± 3,0	8,0
280	289	378	44,5	1,5 / 1,0	51,5	12	50	42,0 ± 3,0	8,0
300	314	403	44,5	1,5 / 1,0	51,5	12	50	42,0 ± 3,0	8,0
315	328	417	44,5	1,5 / 1,0	51,5	12	50	42,0 ± 3,0	8,0
355	370	459	44,5	1,5 / 1,0	51,5	12	50	42,0 ± 3,0	8,0
400	415	504	44,5	1,5 / 1,0	51,5	12	50	42,0 ± 3,0	8,0

FLAMRO Variant N II A / FLAMRO Variant N III A

Design of the pipe collar in the size FLAMRO Variant N II A

Annex 4



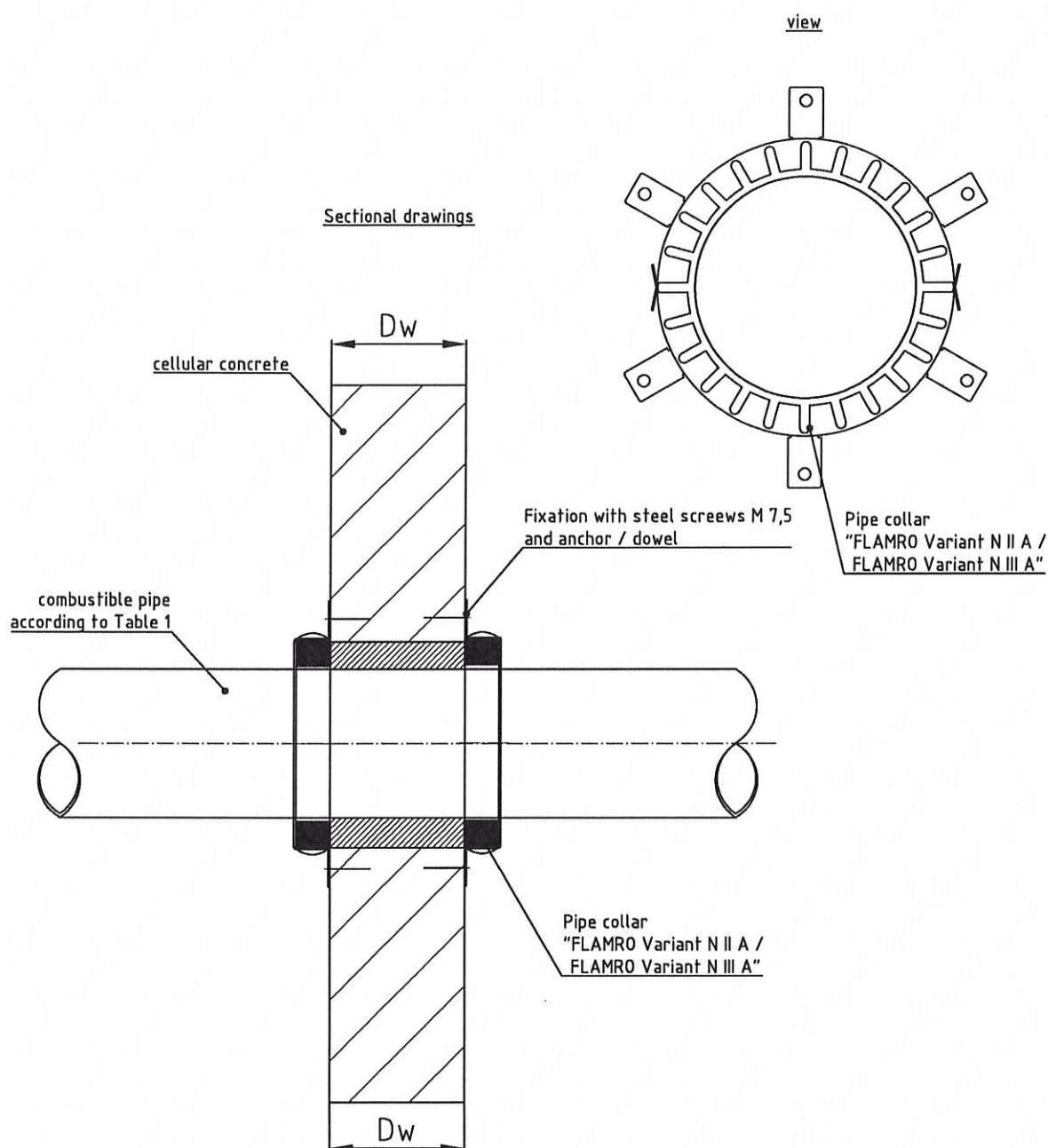


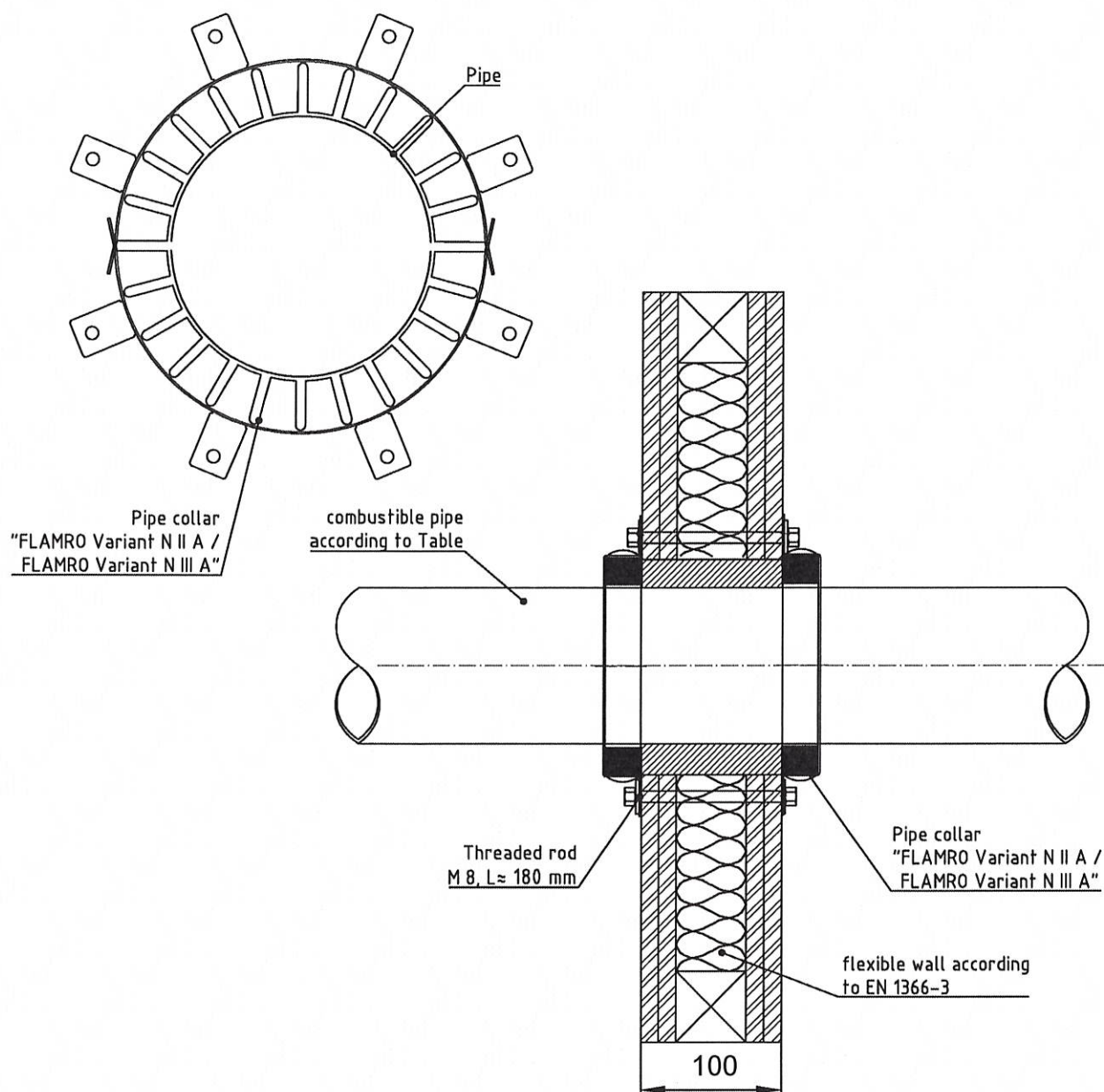
Table 1

Type of pipe	Ø [mm]	s [mm]	Pipe collar size	p Wand	Dw [mm]	Classification
PVC	200	9,6	N II A 200	550 kg/m <sup>3</sup>	100	EI 240-U/C

FLAMRO Variant N II A / FLAMRO Variant N III A

Example for a pipe sealing of fire resistance class EI 240-U/C, using pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A", in the size FLAMRO Variant N II A, ø 200

Annex 5



Flexible wall

CW 50x50x0,6 and UW 50x40x0,6 according to DIN 18182-01

2 x 12,5 mm gypsum board F / EN 520-G25/2,5 according to EN 520 two layers on both sides

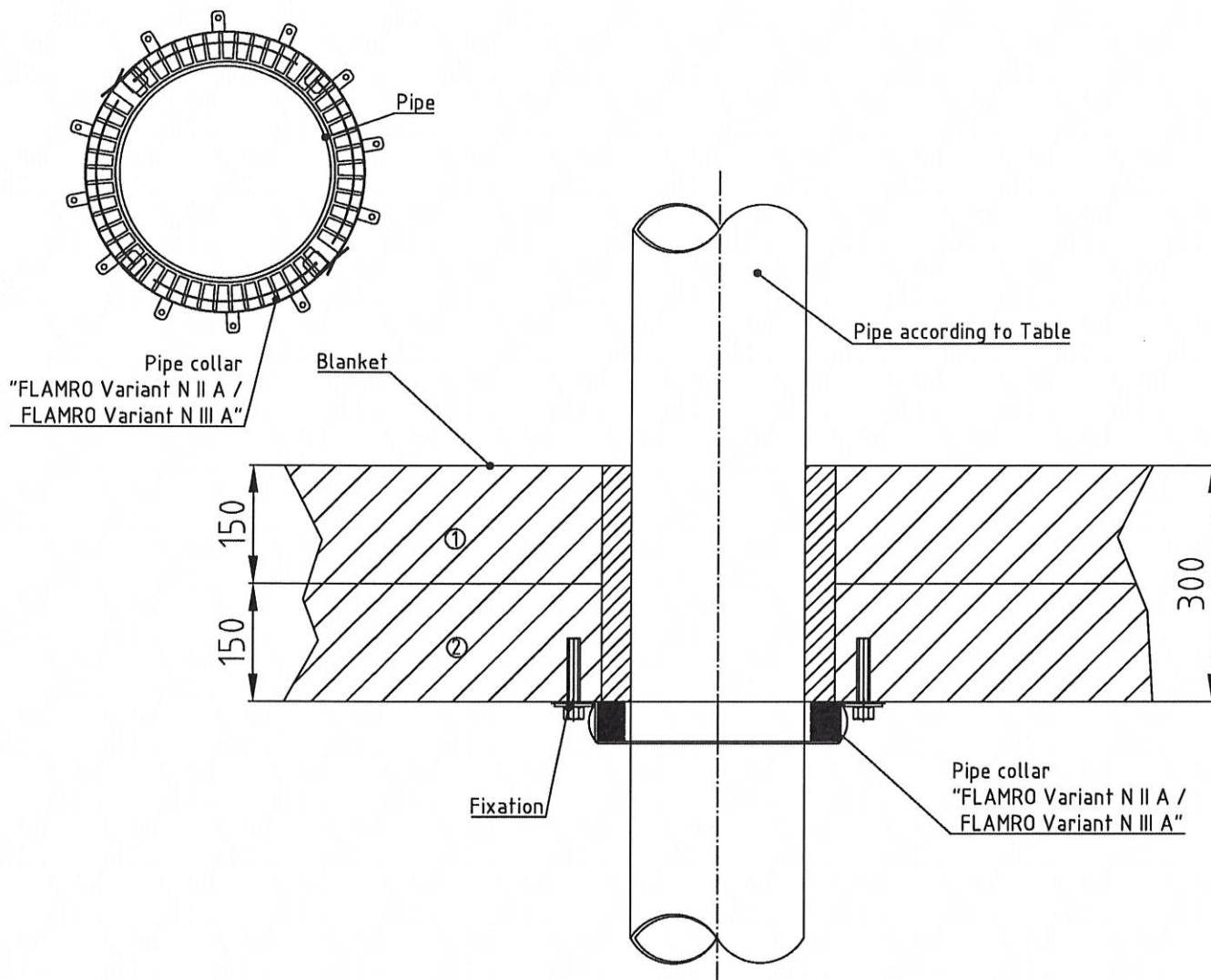
40 mm mineral wool insulation,  $\rho$  100kg/m<sup>3</sup>, melting point  $\geq 1000^\circ\text{C}$ , A1 according to EN 13501-1

Pipe			
Type of pipe	$\varnothing$ [mm]	s [mm]	Pipe collar size
Coolfit	180	/	N II A 180

FLAMRO Variant N II A / FLAMRO Variant N III A

Example for a pipe sealing of fire resistance class EI 120-U/C, using pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A", in the size FLAMRO Variant N II A,  $\varnothing$  180

Annex 6



Blanket

- 1 Aerated concrete blocks  $d = 150 \text{ mm}$ ;  $600 - 650 \text{ kg/m}^3$   
2 Aerated concrete panels  $d = 150 \text{ mm}$ ;  $450 - 500 \text{ kg/m}^3$

Pipe			
Type of pipe	$\varnothing$ [mm]	s [mm]	Pipe collar size
PVC	400	11,7	N II A 400

Fixation:

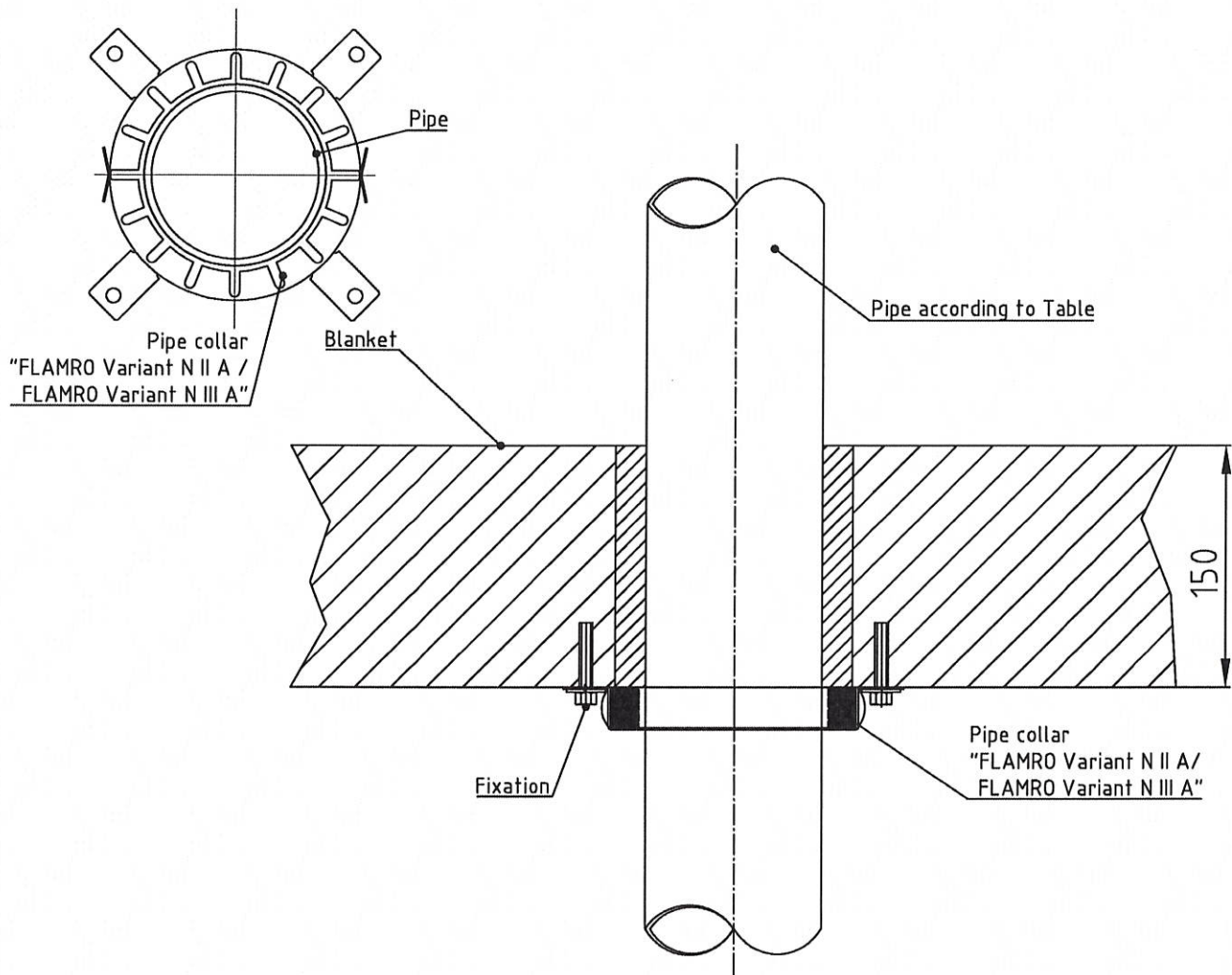
Screws MMS-P 7,5 x 45  
or  
metal multipurpose anchors 8 x 38

FLAMRO Variant N II A / FLAMRO Variant N III A

Example for a pipe sealing of fire resistance class EI 180-U/C or E 240-U/C, using pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A", in the size FLAMRO Variant N II A,  $\varnothing 400$

Annex 7





Blanket  
Aerated concrete according to EN 1366-3

Type of pipe	Pipe		Pipe collar size
	Ø [mm]	s [mm]	
PP	110	2,7	N III A 110

Fixation:  
Screws MMS-P 7,5 x 45  
or  
metal multipurpose anchors 8 x 38

FLAMRO Variant N II A / FLAMRO Variant N III A

Example for a pipe sealing of fire resistance class EI 120-U/U, using pipe collar "FLAMRO Variant N II A / FLAMRO Variant N III A", in the size FLAMRO Variant N III A, Ø 110

Annex 8