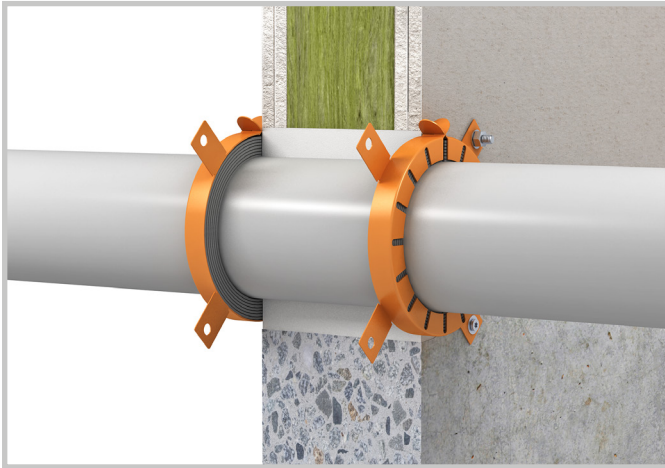


Assembly Instruction

FLAMRO Variant N II A

according to ETA-13/0922



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Assembly Instruction

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Target audience

This assembly instruction is addressed exclusively to trained experts on fire technology.

Usage of assembly instruction

- Please read through the lot of this assembly instruction carefully prior to work start. Regard in particular the following safety information.
- The holder of assessment assumes no liability for damages which are caused by disregard for this assembly instruction.
- Graphic depictions serve as examples only. Assembly results may vary visually.

Safety information

For processing of partition components, please regard the safety data sheets.







Protection and hygiene measures:

- Observe the usual precautions when handling chemicals. Wash hands before work breaks and immediately after handling the product. Avoid contact with skin, eyes and clothing. Take off stained or soaked clothes immediately.

Eye wash with clean water (EN 15154).

Wear closed work clothing.

	Respiratory protection - Dust mask When exposure limit is exceeded (e.g. possible when turning on), use particle-filtering half mask FFP 1 (white).
	Hand protection - Protective gloves Use waterproof, abrasion- and alkali-resistant nitrile gloves. Different requirements can result depending on application. Therefore observe additional recommendations by the protective gloves' manufacturer.
	Eye protection – Use safety goggles
	Body protection – Use protective work wear

Do not eat, drink or smoke during work. After work is finished, wash all uncovered body parts with water and soap thoroughly.

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Components

Rigid walls

The wall must have a minimum thickness of ≥ 100 mm bzw. ≥ 300 mm (depending on pipe dimension and fire resistance classification) and consist of concrete, ferroconcrete or aerated concrete with a minimum raw density of 630 kg / m^3 . The wall shall be classified in accordance to EN 13501 - 2 for the required fire resistance period.

Lightweight partition walls

The lightweight partition wall must have a minimum thickness of ≥ 100 mm and consist of wooden or steel framework in accordance to EN14195. It should be encased on both sides with 2 layers of concrete or gypsum building panels (minimum thickness 12.5 mm) with the fire performance of class A1 or A2 in accordance to EN 13501-1.

Bei Holzständerwerk muss ein Mindestabstand von ≥ 100 mm der Schottung zu den einzelnen Ständern eingehalten werden und der Hohlraum zwischen den Bekleidungen der Wand und dem Ständer bzw. der Abschottung muss mindestens 100 mm tief mit Mineralwolle der Euro Klasse A1 oder A2 nach EN 13501 - 1 verstopft werden.

Die Wandkonstruktion muss nach EN13501 - 2 klassifiziert werden.

Rigid floor

The floor must have a minimum thickness of ≥ 150 mm or ≥ 300 mm (depending on pipe dimension and fire resistance classification) and consist of concrete, ferroconcrete or aerated concrete with a minimum raw density of 630 kg / m^3 . The rigid floor shall be classified in accordance with EN 13501 - 2 for the required fire resistance period.

Application field

Identifier	Wall	Floor
Thickness of the component	≥ 100 mm bzw. ≥ 300 mm	≥ 150 mm bzw. ≥ 300 mm
Maximum dimension of isolated combustible pipelines	≤ 400 mm	≤ 400 mm
Distance to other openings or installations	≥ 200 mm	≥ 200 mm
Distance to other openings or installations if isolated component seal is not larger than 200 mm x 200 mm	≥ 100 mm	≥ 100 mm

Assembly Instruction

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Approved assignments and classifications

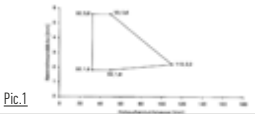
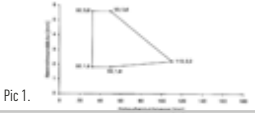
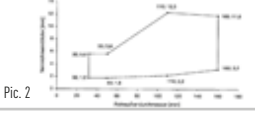
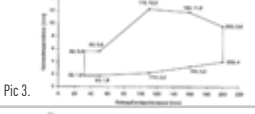


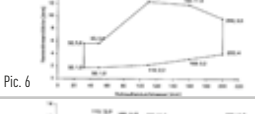
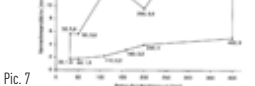
The pipe penetration seal may be used on straight pipes which are fixed perpendicular to the wall or floor surface.

The pipe work shall only be used for non-combustible liquids and fluids, pneumatic dispatch systems or vacuum cleaning pipes.

Pneumatic dispatch, pneumatic lines or alike have to be turned off with additional measures in case of fire.

Pneumatische Förderanlagen, pnema müssen im Brandfall durch zusätzliche Maßnahmen abgeschaltet werden.

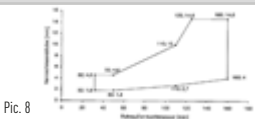
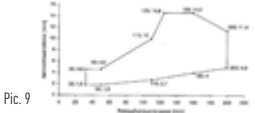
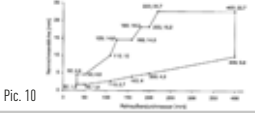
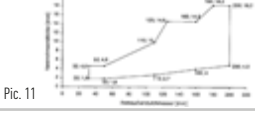
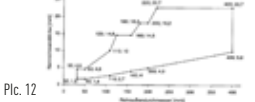
No ventilation system

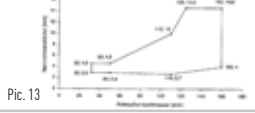
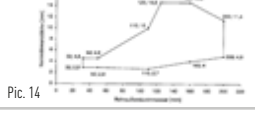
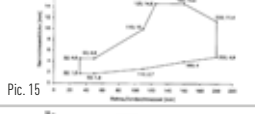
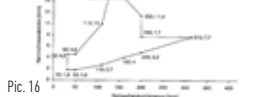
Raw material PVC						
Component	Component thickness [mm]	Pipe-Ø [mm]	Fire resistance class		Pipe end configuration	Permitted pipe dimensions
			E	I		
Light partition wall	≥ 100	≤ 110	120	120	U/U	
Rigid wall	≥ 100	≤ 110	120	120	U/U	
Light partition wall	≥ 100	≤ 160	120	120	U/C	
Rigid wall	≥ 100	≤ 200	120	120	U/C	
Rigid wall	≥ 100	≥ 180 ≤ 200	<u>240</u>	<u>240</u>	U/C	
Rigid wall	≥ 300	≤ 400	120	120	U/C	
Rigid floor	≥ 150	≤ 200	120	120	U/C	
Rigid floor	≥ 300	≤ 400	120	120	U/C	

Assembly Instruction

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Raw material PE-HD						
Component	Component thickness [mm]	Pipe-Ø [mm]	Fire resistance class		Pipe end configuration	Permitted pipe dimensions
			E	I		
Light partition wall	≥ 100	≤ 160	120	120	U/C	 Pic. 8
Rigid wall	≥ 100	≤ 200	120	120	U/C	 Pic. 9
Rigid wall	≥ 300	≤ 400	120	120	U/C	 Pic. 10
Rigid floor	≥ 150	≤ 200	120	120	U/C	 Pic. 11
Rigid floor	≥ 300	≤ 400	120	120	U/C	 Pic. 12

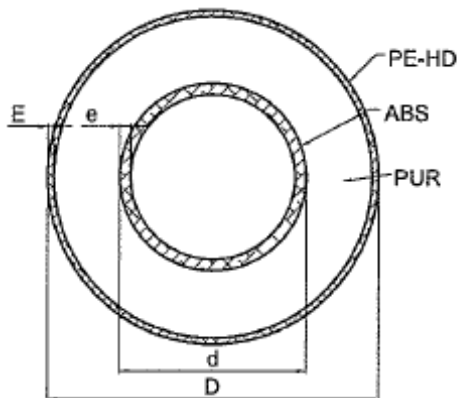
Raw material PP						
Component	Component thickness [mm]	Pipe-Ø [mm]	Fire resistance class		Pipe end configuration	Permitted pipe dimensions
			E	I		
Light partition wall	≥ 100	≤ 160	120	120	U/C	 Pic. 13
Rigid wall	≥ 100	≤ 200	120	120	U/C	 Pic. 14
Rigid floor	≥ 150	≤ 200	120	120	U/C	 Pic. 15
Rigid floor	≥ 300	≤ 315	120	120	U/C	 Pic. 16

Assembly Instruction

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Special pipe „CoolFit“



d = Outer diameter ABS-pipe
 D = Outer diameter PE-HD-pipe
 e = Pipe wall thickness of ABS-pipe
 E = Pipe wall thickness of PE-HD-pipe
 G = Weight PUR + ABS

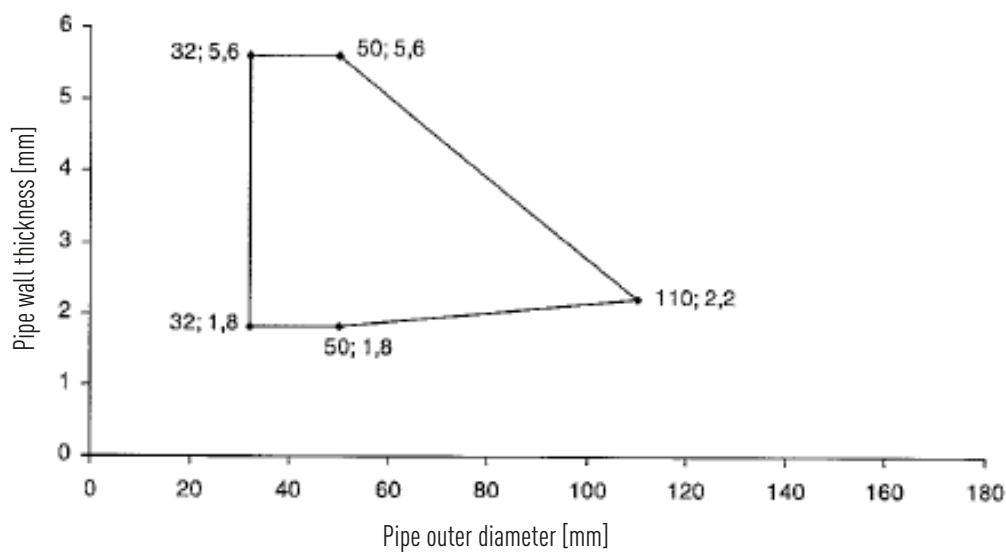
D [mm]	E [mm]	d [mm]	e [mm]	G [kg/m]	Component	Component thickness d_w or d_b	FRC
90	2,2	25	2,3	1,24	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	
90	2,2	32	1,9	1,29	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	
110	2,7	40	2,4	1,76	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	
110	2,7	50	3,0	1,89	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	
125	3,0	63	3,8	2,48	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	
140	3,0	75	4,6	3,17	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	EI 90-U/C
160	3,0	90	5,4	4,11	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	EI 90-U/C
180	3,0	110	6,6	5,22	LTW, MW	≥ 100 mm	EI 120-U/C
					D	≥ 150 mm	EI 90-U/C
225	3,2	140	9,2	8,16	MW	≥ 240 mm	EI 120-U/C
					D	≥ 200 mm	EI 90-U/C
250	3,9	160	10,5	10,34	MW	≥ 240 mm	EI 120-U/C
					D	≥ 200 mm	EI 90-U/C
280	4,4	200	13,1	13,42	MW	≥ 240 mm	EI 90-U/C
					D	≥ 200 mm	
315	4,9	225	14,8	17,97	MW	≥ 240 mm	EI 90-U/C
					D	≥ 200 mm	EI 120-U/C

Assembly Instruction

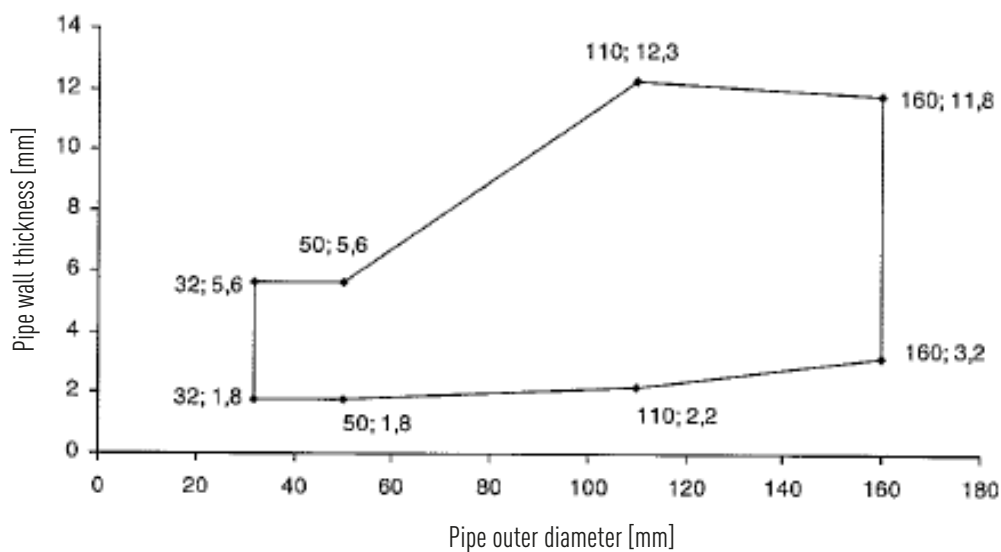
FLAMRO Variant N II A

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Pic. 1: Pipes according to pipe group A (PVC): Installation in light partition walls and rigid walls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 120-U/U



Pic. 2: Pipes according to pipe group A (PVC): Installation in light partitionwalls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 120-U/U

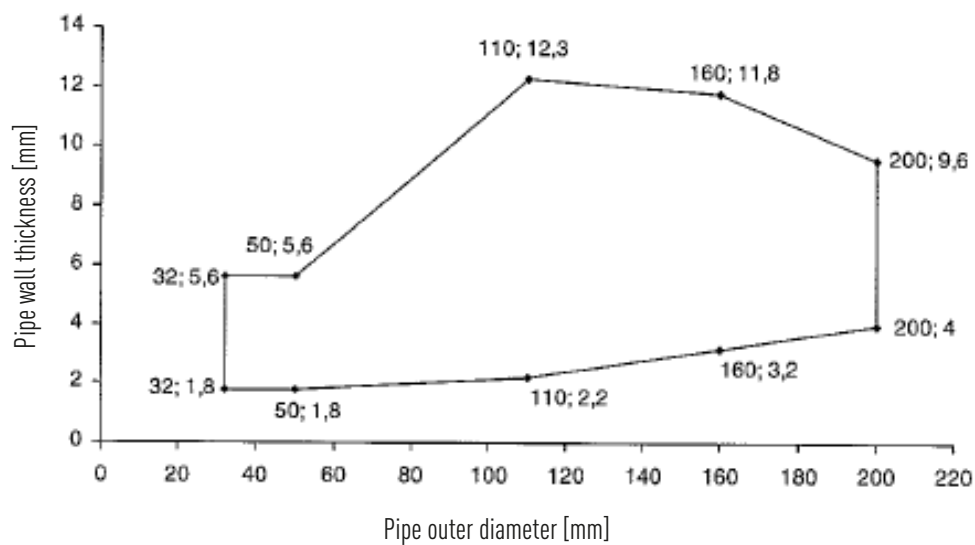


Assembly Instruction

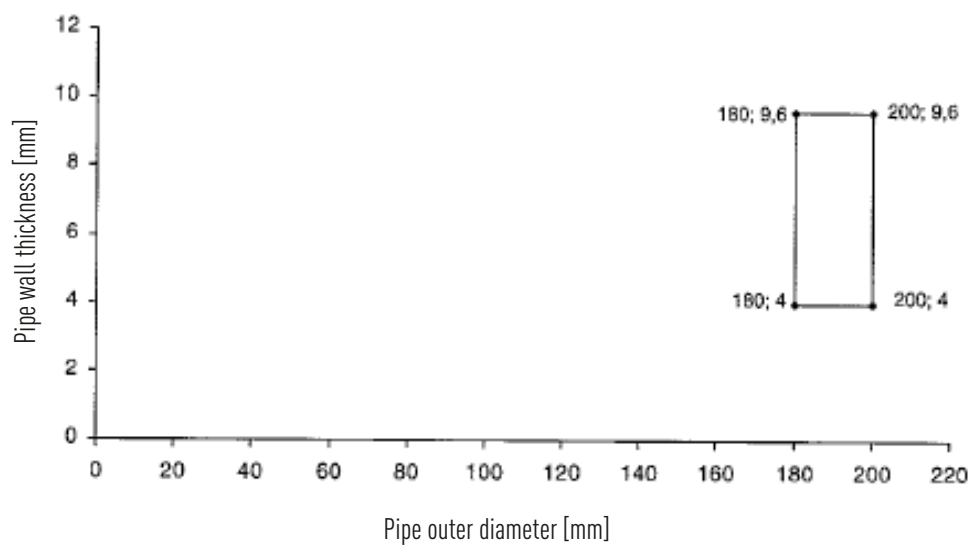
FLAMRO Variant N II A

according to ETA-13/0922

Pic. 3: Pipes according to pipe group A (PVC): Installation in rigid walls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 120-U/U



Pic. 4: Pipes according to pipe group A (PVC): Installation in rigid walls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 240-U/U

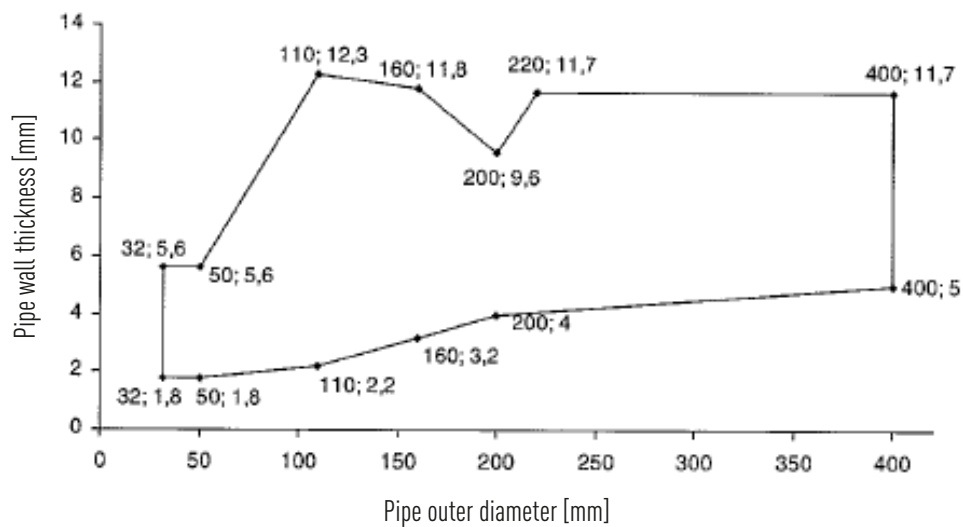


Assembly Instruction

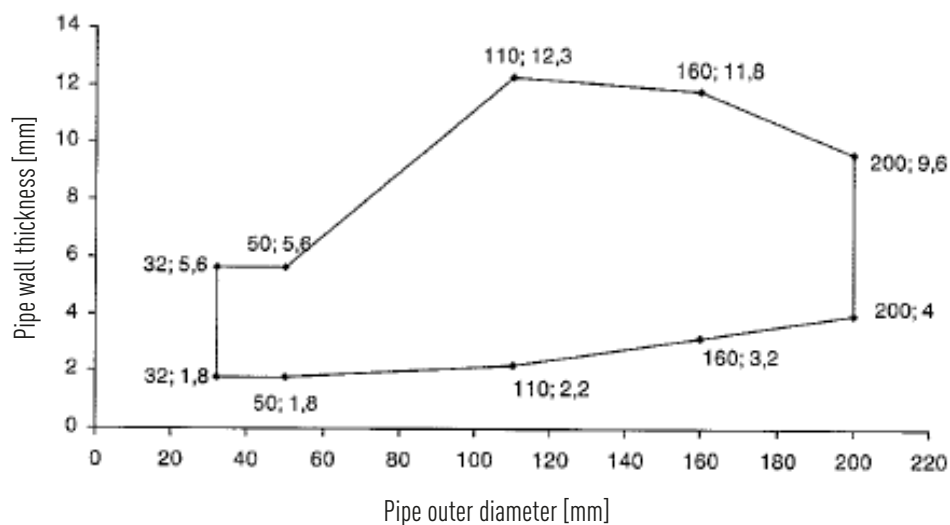
FLAMRO Variant N II A

according to ETA-13/0922

Pic. 5: Pipes according to pipe group A (PVC): Installation in rigid walls;
 $d_w \geq 300\text{mm}$; Fire resistance class EI 120-U/U



Pic. 6: Pipes according to pipe group A (PVC): Installation in rigid floors;
 $d_w \geq 150\text{mm}$; Fire resistance class EI 120-U/U

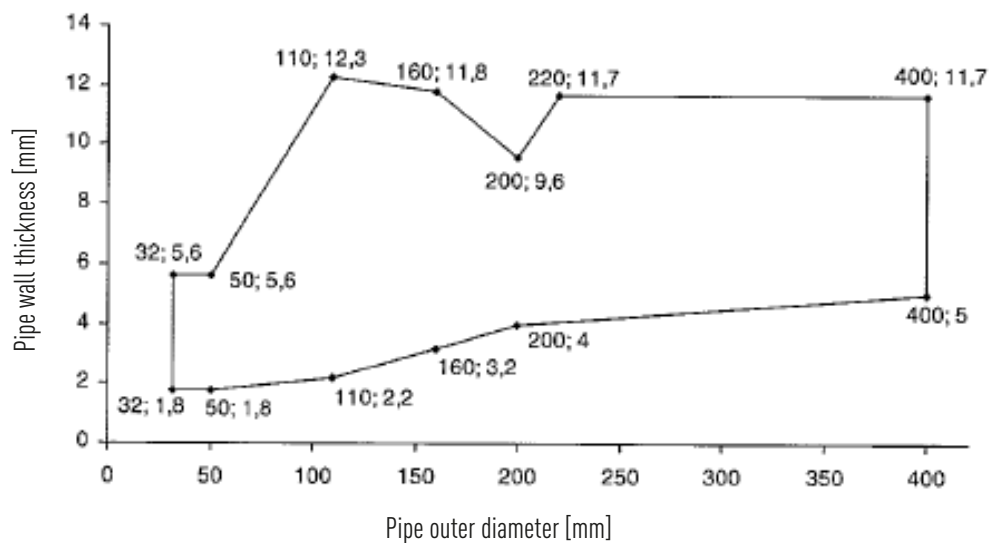


Assembly Instruction

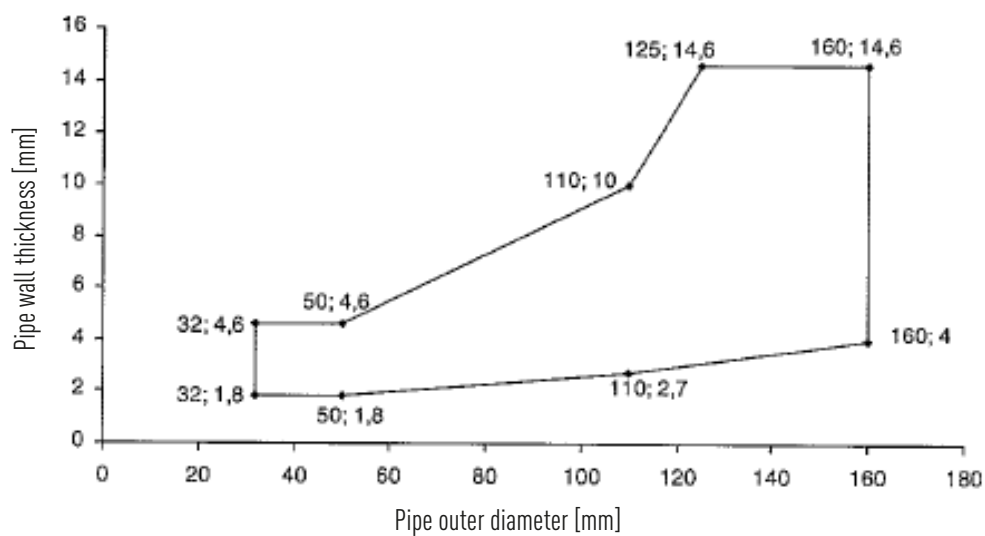
FLAMRO Variant N II A

according to ETA-13/0922

Pic. 7: Pipes according to pipe group A (PVC): Installation in rigid floors;
 $d_w \geq 300\text{mm}$; Fire resistance class EI 120-U/U



Pic. 8: Pipes according to pipe group B (PE-HD): Installation in light partition walls and rigid walls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 120-U/U

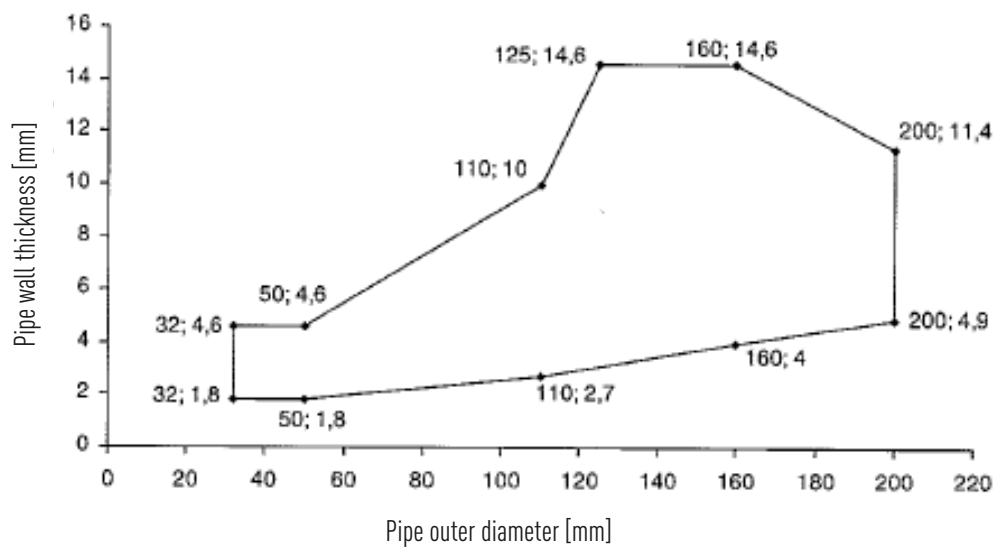


Assembly Instruction

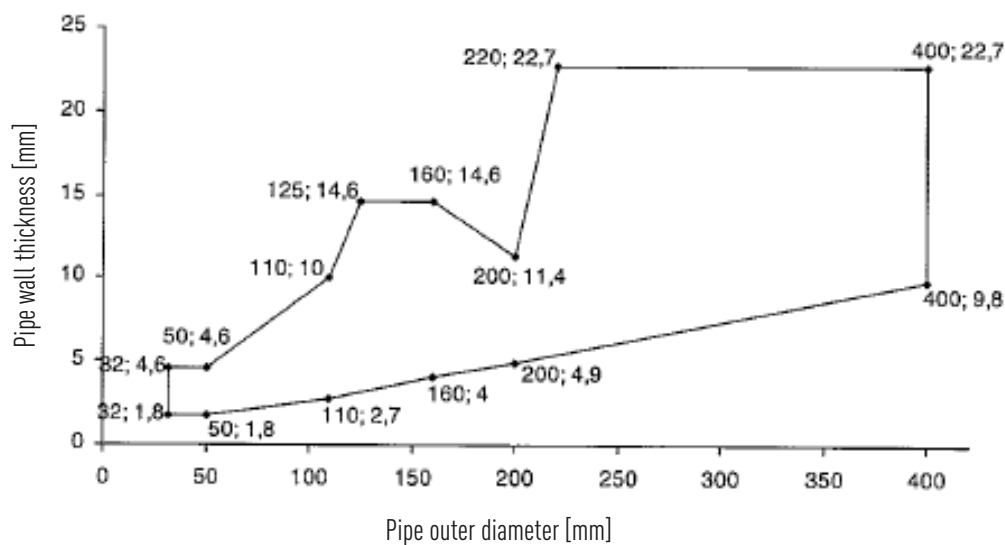
FLAMRO Variant N II A

according to ETA-13/0922

Pic. 9: Pipes according to pipe group B (PE-HD): Installation in rigid walls;
 $d_w \geq 100\text{mm}$; Fire resistance class EI 120-U/U



Pic.10: Pipes according to pipe group B (PE-HD): Installation in rigid walls;
 $d_w \geq 300\text{mm}$; Fire resistance class EI 120-U/U

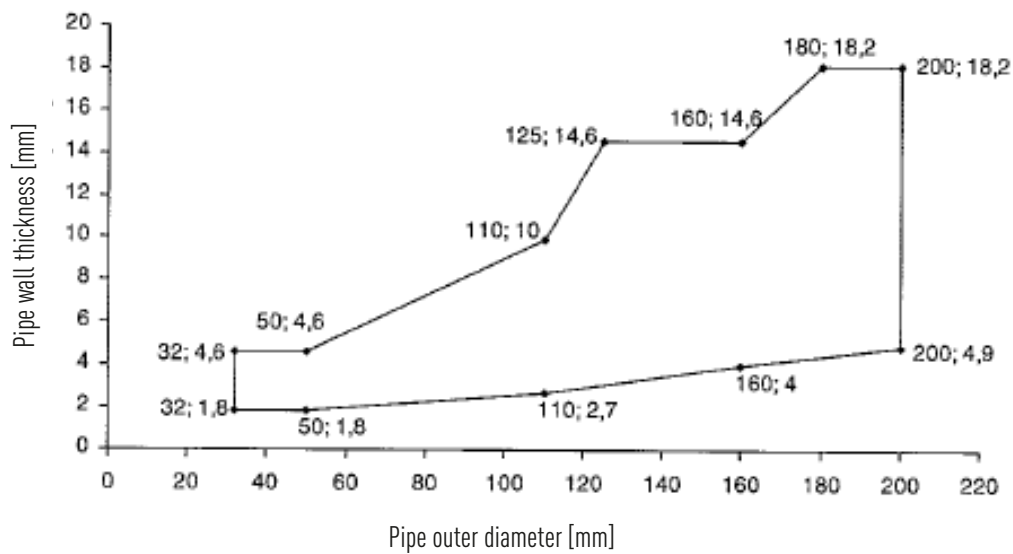


Assembly Instruction

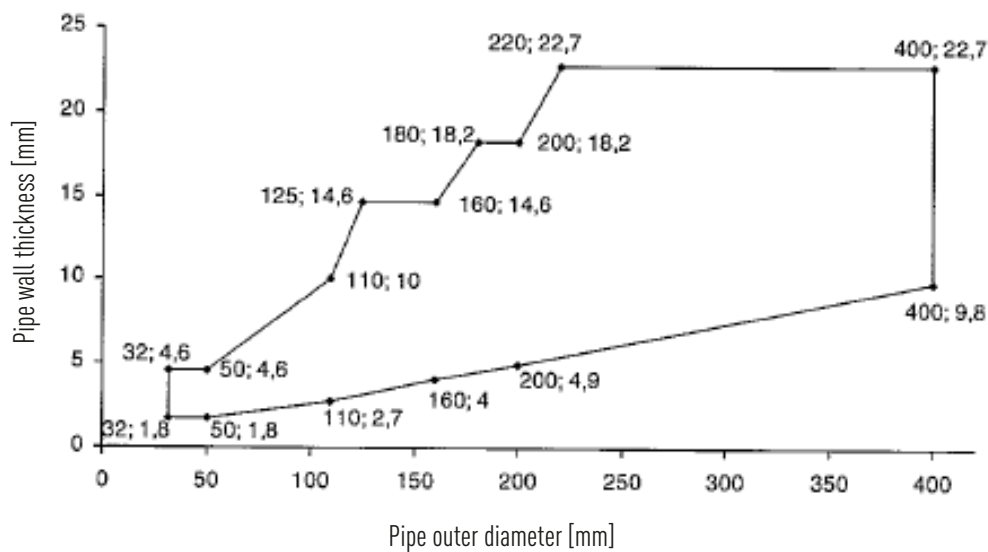
FLAMRO Variant N II A

according to ETA-13/0922

Pic.11: Pipes according to pipe group B (PE-HD): Installation in rigid floors;
 $d_w \geq 150\text{mm}$; Fire resistance class EI 120-U/U



Pic.12: Pipes according to pipe group B (PE-HD): Installation in rigid floors;
 $d_w \geq 300\text{mm}$; Fire resistance class EI 120-U/U

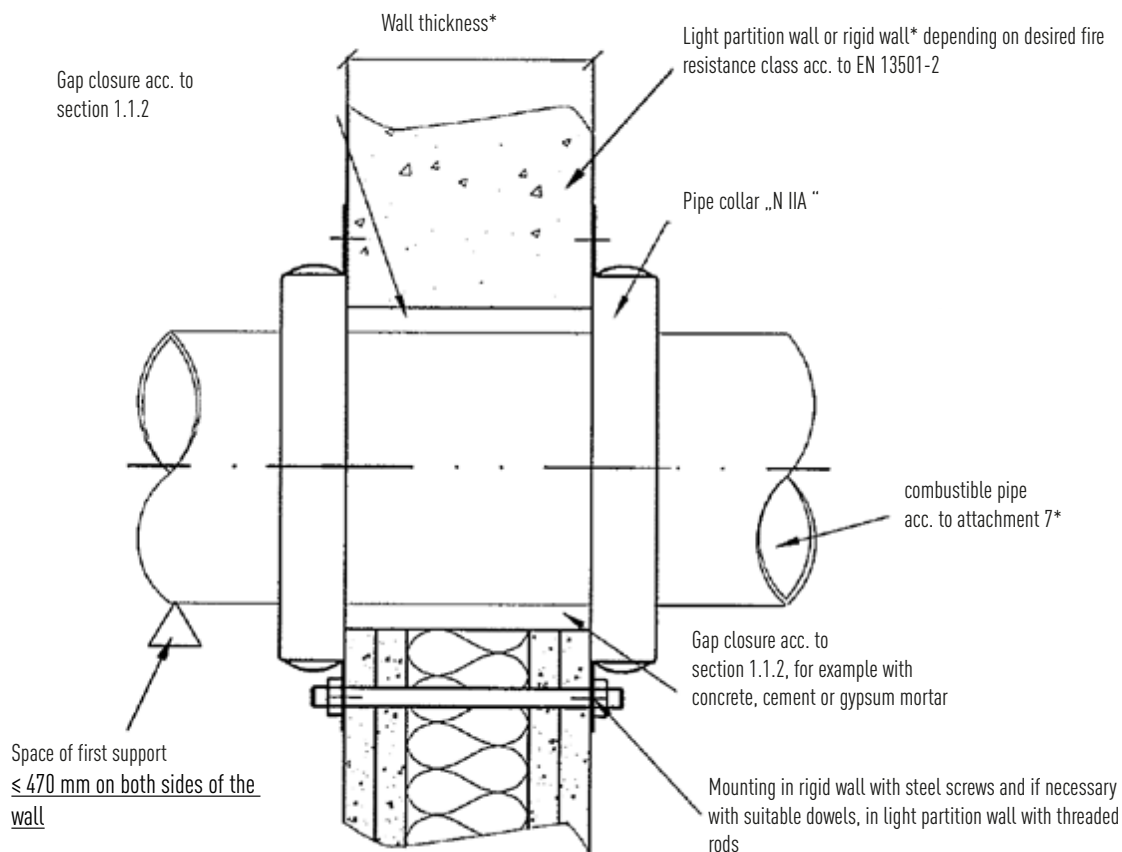


Assembly Instruction

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Approved assignment - wall

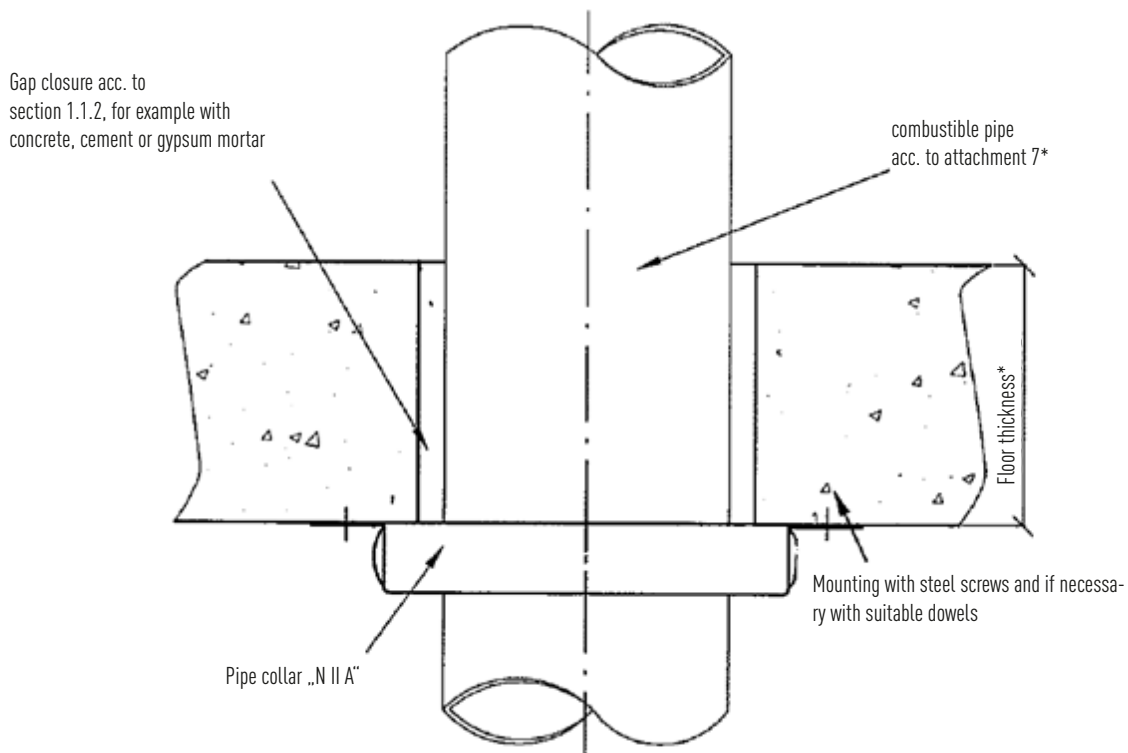


Assembly Instruction

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Approved assignment - floor

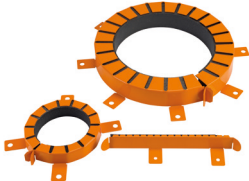


Assembly Instruction

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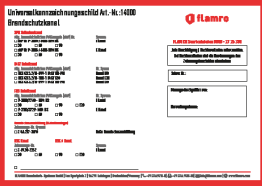
Applied products

Image	Article Identifier / Diameter	Art-No.
Variant N II A Fire protection collar		
	32	15032
	40	15040
	50	15050
	63	15063
	75	15075
	90	15090
	110	15110
	125	15125
	140	15140
	160	15160
	180	15180
	200	15200
	225	15225
	250	15250
	280	15280
	300	15300
	315	15315
355	15355	
400	13400	

Assembly Instruction

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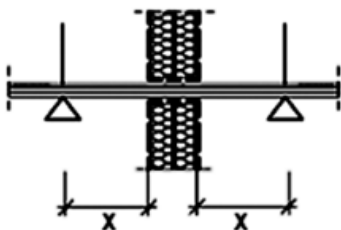
according to ETA-13/0922

Accessories			
	Mounting kit	Ø 32 – 50 mm	15001
		Ø 63 – 125 mm	15002
		Ø 140 – 160 mm	15003
		Ø 180 – 200 mm	15004
		Ø 225 – 250 mm	15005
		Ø 280 – 400 mm	15006
	Identification sign		14000

Arrangement of the first support (backings)

Supports/Backings of the installations in front of the wall insulation must consist of essentially non-combustible components and be arranged with a distance according to the following overview.

Installation	Wall	Floor
non-combustible pipes	≤ 470 mm on both sides	≤ ??? mm above





DECLARATION OF PERFORMANCE

for product **FLAMRO Variant N II A**

1.	Unique identification code of the product-type:	RA-13-0922
2.	Intended use:	Pipe penetration seal
3.	Manufacturer:	FLAMRO Brandschutz-Systeme GmbH Am Sportplatz 56291 Leiningen
4.	Authorised representative:	Not relevant
5.	System(s) of AVCP:	System 1
6.a)	Harmonised standard	Not relevant
6.b)	European Assessment Document:	ETAG-026, Part 2, August 2011
	European Technical Assessment:	ETA-13/0922
	Technical Assessment Body:	OIB - Österreichisches Institut für Bautechnik, Vienna
	Notified bod/ies:	Materialprüfanstalt für das Bauwesen Braunschweig, No. 0761

7. Declared performances

Essential characteristics	Performance	Harmonised technical specification
Fire resistance as a pipe sealing for plastic pipes made of PVC, PE or PP due fire protection collar type FLAMRO Variant N II A with dimensions max. 400 mm within min. 100 mm thick light penetration walls, min. 100 mm thick rigid walls or min. 150mm thick rigid walls. *)	Max. EI 120 - U/U or Max. EI 240 - U/C	ETA-13/0922
Durability and serviceability	Use category Type X	
Air permeability	NPD	
Water permeability	NPD	
Release of dangerous substances	none	
Mechanical resistance and stability	NPD	
Resistance to impact / movement	NPD	
Adhesion	NPD	
Airborne sound insulation	NPD	
Thermal properties	NPD	
Water vapour permeability	NPD	
Components - reactions to fire	Class acc. to EN 13501-1	
FLAMRO Variant N II A (intumeszierende Einlage)	E	
FLAMRO Variant N II A (Stahlblechgehäuse)	A1	
*) according to ETA-13/0922		

8. Appropriate Technical Documentation /
Specific Technical Documentation:

Not relevant

**Website where Declaration of Performance can be viewed:
www.flamro.com**



The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued in accordance with Regulation (EU) No. 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Dr. Hemp, Head of R&D / Authorised officer, FLAMRO Brandschutz-Systeme
(Name and position)

Leiningen, 27.10.2017
(Place and date of issue)

A handwritten signature in blue ink, appearing to read 'Dr. Hemp', written over a horizontal dotted line.

(signature)