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European Technical Assessment ETA-17/1064 of 14/12/2017

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	Piro Wrap PW
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products. Penetration Seals
Manufacturer	PIROSYSTEM Sp. z o.o. ul. Ogrodnicza 3A 83-021 Wiślina Poland
Manufacturing plant	Manufacturing plant no. 1
This European Technical Assessment contains	21 pages including 3 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	Guideline for European Technical Approval "Fire Stopping and Fire Sealing Products – Part 2: Penetration Seals" ETAG 026-2, edition August 2011, used as European Assessment Document (EAD)

This European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Specific Part

1 Technical description of the product

Piro Wrap PW is an intumescent wrap pipe closure device used to form penetration seals where combustible pipes penetrate walls and floors.

Piro Wrap PW wraps are supplied in assembled form. They include one or more layers of an intumescent liner, graphite based, inserted into an outer layer made of PVC foil or similar material.

Piro Wrap PW shall be wrapped around the pipe and may be cut to a required length (equal or greater than external circumference of the pipe), if necessary. They shall be pushed into the aperture in the separating element.

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

2.1 Intended use

The intended use of Piro Wrap PW is to reinstate the fire resistance performance of rigid wall and rigid floor constructions where they are penetrated by combustible pipes.

The specific elements of construction that the Piro Wrap PW may be used to provide a penetration seal in, are as follows:

Rigid walls:	The wall must have a minimum thickness of 150 mm and comprise concrete, reinforced concrete, aerated concrete, ceramic brick, cavity brick or checker brick, with a minimum density of 600 kg/m^3.
Rigid floors:	The floor must have a minimum thickness of 150 mm and comprise concrete or reinforced concrete with a minimum density of 1700 kg/m^3.

The supporting construction shall be classified in accordance with EN 13501-2 for the required fire resistance period (equal or greater than specified in Annex B).

Piro Wrap PW may be used to provide a penetration seal with specific combustible pipes (according to Annexes A to C).

The Piro Wrap PW shall be either placed in the centre of the wall thickness (according to Annex B1) or in the distance of 10 mm from the bottom of the floor (according to Annex B3).

The minimum distance between the penetration seals in supporting construction shall be 100 mm.

Pipes shall be supported at maximum 370 mm away from both faces of the wall constructions and from the upper face of floor constructions.

The performances given in this European Technical Assessment are based on an assumed working life of the Piro Wrap PW of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the

Technical Assessment Body, 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.

2.2 Use category

Type Z_2: intended for use in internal conditions with humidity lower than 85% RH, excluding temperatures below 0°C, without exposure to rain or UV.

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

3.1 Performance of the product

3.1.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class F
Resistance to fire	See Annex B

3.1.2 Hygiene, health and the environment (BWR 3)

The applicant has submitted a written declaration that the product and/or constituents of the product contains no substances which have been classified as dangerous according to EOTA TR 034.

Regarding the dangerous substances clauses contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.1.3 Safety and accessibility in use (BWR 4)

No performance assessed.

3.1.4 Protection against noise (BWR 5)

No performance assessed.

3.1.5 Energy economy and heat retention (BWR 6)

No performance assessed.

3.1.6 General aspects relating to fitness for use

Essential characteristic	Performance
Durability and serviceability	Use category: Type Z_2

3.1.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.2 Methods used for the assessment

The assessment of fitness of the wrap for the declared intended use in relation to the requirements for safety in case of fire and general aspects relating to fitness for use has been made in accordance with the ETAG 026-2 *"Fire Stopping and Fire Sealing Products – Part 2: Penetration Seals"*, edition August 2011.

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

According to Decision 99/454/EC of the European Commission, as amended by Decision 2001/596/EC of the European Commission the system 1 of assessment and verification of constancy of performance applies (see Annex V to Regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

Issued in Warsaw on 14/12/2017 by Instytut Techniki Budowlanej

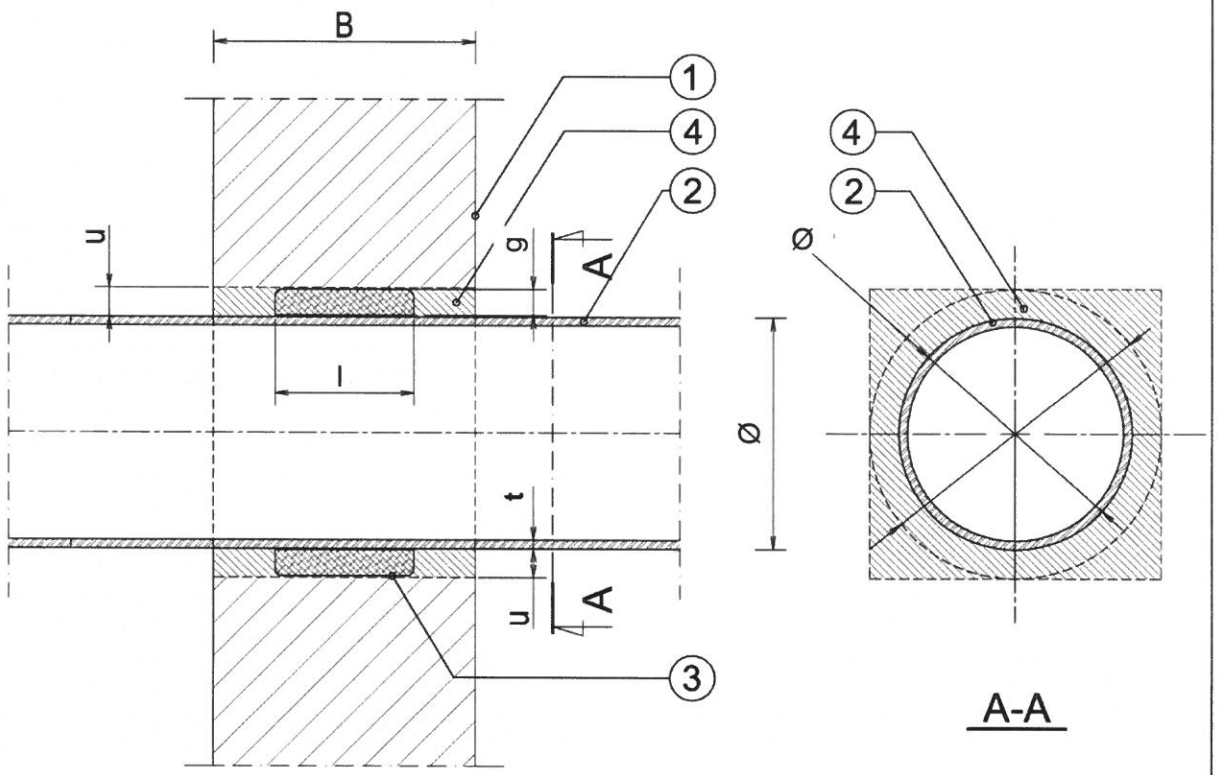
Anna Panek, MSc
Deputy Director of ITB

Additional provisions

- Classification given in tables B2.1 and B4.1 is valid for pipes made from PE-HD according to EN 1519-1 or EN 12666-1, pipes made from PE according to EN 12201-2, EN 1519-1 and EN 12666-1, pipes made from ABS according to EN 1455-1 and pipes made from SAN + PVC according to EN 1565-1.
- Classification given in tables B2.2 and B4.2 is valid for pipes made from PP according to EN 1451-1.
- Classification given in tables B2.3 and B4.3 is valid for pipes made from PVC-U according to EN 1329-1, EN 1453-1 or EN 1452-1, pipes made from PVC-C according to EN 1566-1.

Table of contents (Annexes B and C):

Plastic pipe penetration seal in rigid wall, made with use of Piro Wrap PW.



1 rigid wall thickness of B ≥ 150 mm
2 plastic pipe, diameter Ø, pipe wall thickness t
3 Piro Wrap PW [l x g] mm, placed in the centre of the wall thickness
4 space between the pipe and supporting construction filled with cement mortar, u ≤ 25 mm

Piro Wrap PW	
Construction details Plastic pipe penetration seal in rigid wall	**Annex B1** of European Technical Assessment ETA-17/1064

Resistance to fire classification of plastic pipes penetration seals in rigid wall, made with use of Piro Wrap PW, in accordance with Annex B1.

Table B2.1 PE-HD / PE / ABS / SAN + PVC pipes

Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PE-HD / PE / ABS / SAN+PVC	≤ 40	2.4	60	2.0	**EI 120 U/C** **EI 120 C/C**
	≤ 50	3.5	60	see fig. 2 in Annex C	
	40 < Ø ≤ 160	see fig. 1 in Annex C	100	see fig. 3 in Annex C	
		see fig. 1 in Annex C	100	see fig. 3 in Annex C	**EI 90 U/C** **EI 90 C/C**

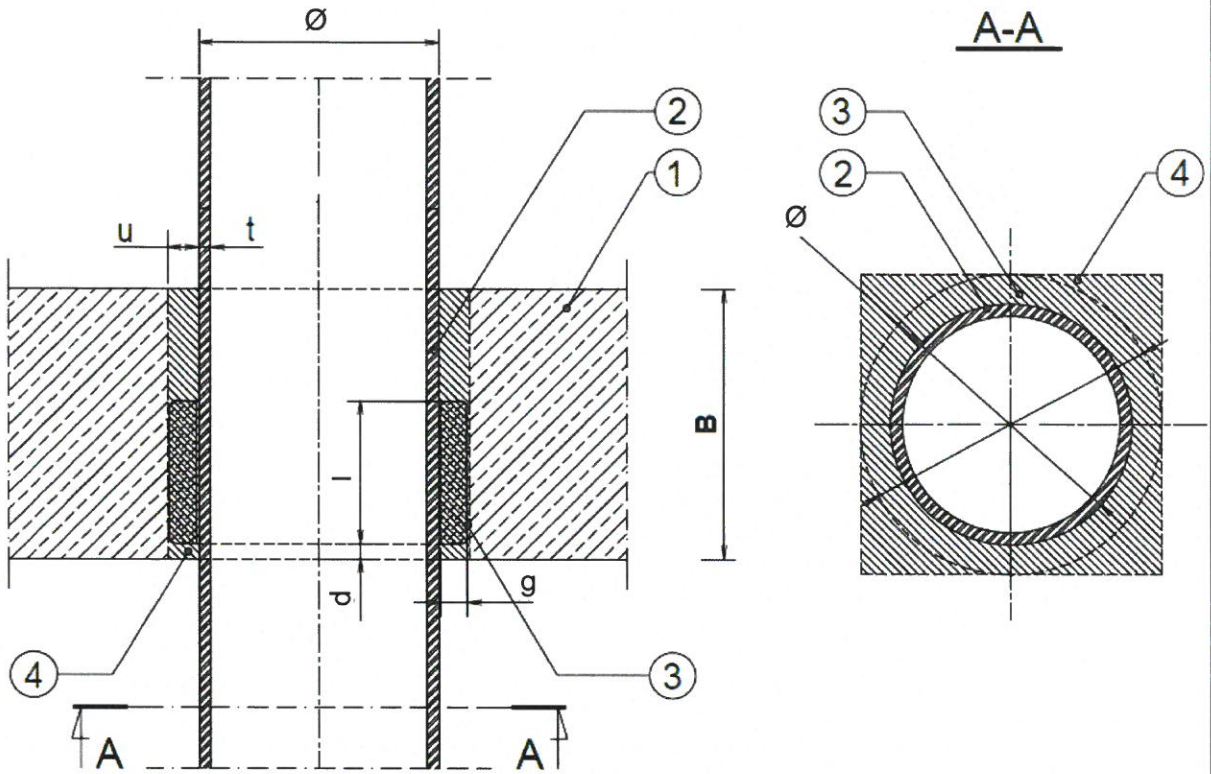
Table B2.2 PP pipes

Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PP	≤ 40	1.8	60	see fig. 4 in Annex C	**EI 120 U/C** **EI 120 C/C**
	≤ 50	2.3	60	see fig. 4 in Annex C	
	≤ 135	6.0	60	see fig. 4 in Annex C	

Table B2.3 PVC-U / PVC-C pipes

Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PVC-U / PVC-C	≤ 40	1.9	60	see fig. 6 in Annex C	**EI 120 U/C** **EI 120 C/C**
	≤ 50	2.0	60	see fig. 6 in Annex C	
	40 < Ø ≤ 140	see fig. 5 in Annex C	60	see fig. 6 in Annex C	
	110 < Ø ≤ 160	see fig. 5 in Annex C	100	see fig. 3 in Annex C	

Plastic pipe penetration seal in rigid floor, made with use of Piro Wrap PW.



1 rigid floor thickness of B ≥ 150 mm
2 plastic pipe, diameter Ø, pipe wall thickness t
3 Piro Wrap PW [l x g] mm, placed in the distance of d = 10 mm from the bottom of the floor
4 space between the pipe and supporting construction filled with cement mortar, u ≤ 25 mm

Piro Wrap PW	**Annex B3** of European Technical Assessment ETA-17/1064
Construction details Plastic pipe penetration seal in rigid floor	

Resistance to fire classification of plastic pipes penetration seals in rigid floor, made with use of Piro Wrap PW, in accordance with Annex B3.

Table B4.1 PE-HD / PE / ABS / SAN + PVC pipes

Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PE-HD / PE / ABS / SAN+PVC	≤ 40	2.7	60	see fig. 8 in Annex C	**EI 120 U/C EI 120 C/C**
	≤ 50	3.5	60	see fig. 8 in Annex C	
	40 < Ø ≤ 140	see fig. 7 in Annex C	60	see fig. 8 in Annex C	
	140 < Ø ≤ 160	see fig. 7 in Annex C	100	see fig. 9 in Annex C	

Table B4.2 PP pipes

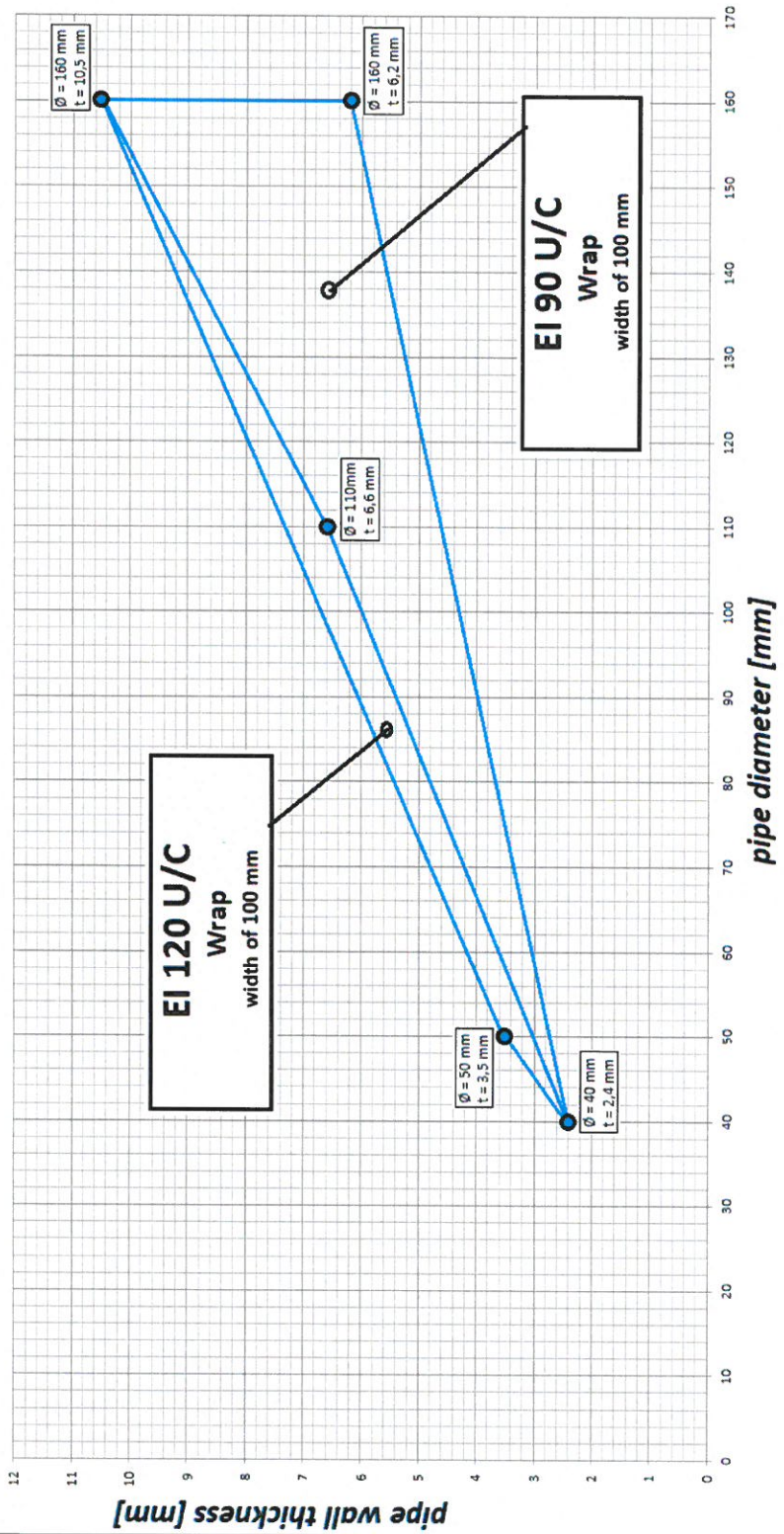
Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PP	≤ 40	1.8	60	see fig. 8 in Annex C	**EI 120 U/C EI 120 C/C**
	≤ 50	2.0	60	see fig. 8 in Annex C	
	≤ 140	see fig. 10 in Annex C	60	see fig. 8 in Annex C	**EI 90 U/C EI 90 C/C**
	40 < Ø ≤ 135	see fig. 10 in Annex C	60	see fig. 8 in Annex C	**EI 120 U/C EI 120 C/C**
	110 < Ø ≤ 160	see fig. 10 in Annex C	100	see fig. 9 in Annex C	
	135 < Ø ≤ 160	see fig. 10 in Annex C	100	see fig. 9 in Annex C	**EI 90 U/C EI 90 C/C**

Table B4.3 PVC-U / PVC-C pipes

Pipe material	Pipe diameter, Ø [mm]	Pipe wall thickness, t [mm]	Intumescent material		Fire resistance class
			width, l [mm]	thickness, g [mm]	
PVC-U / PVC-C	≤ 40	1.6	60	see fig. 8 in Annex C	**EI 120 U/C EI 120 C/C**
	≤ 50	1.9	60	see fig. 8 in Annex C	
	40 < Ø ≤ 140	see fig. 11 in Annex C	60	see fig. 8 in Annex C	
	40 < Ø ≤ 160	see fig. 11 in Annex C	100	see fig. 9 in Annex C	

Piro Wrap PW	**Annex B4** of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Plastic pipe penetration seal in rigid floor	

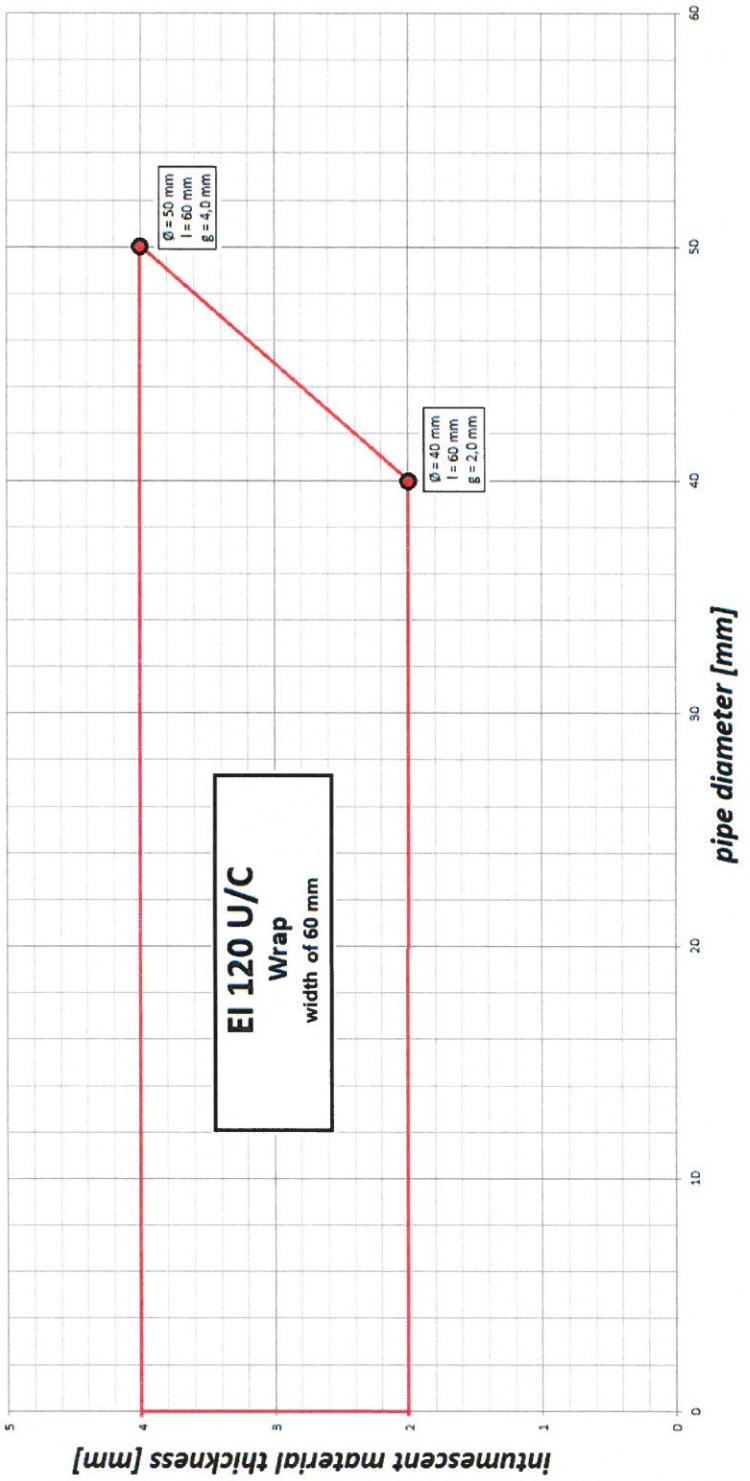
Fig. 1. Range of PE-HD / PE / ABS / SAN + PVC pipes penetration sealed with use of Piro Wrap PW (width of 100 mm), made in accordance with Annex B1.



Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 2. Range of intumescent material thickness for PE-HD / PE / ABS / SAN + PVC pipes penetration sealed with use of Piro Wrap PW (width of 60 mm), made in accordance with Annex B1.

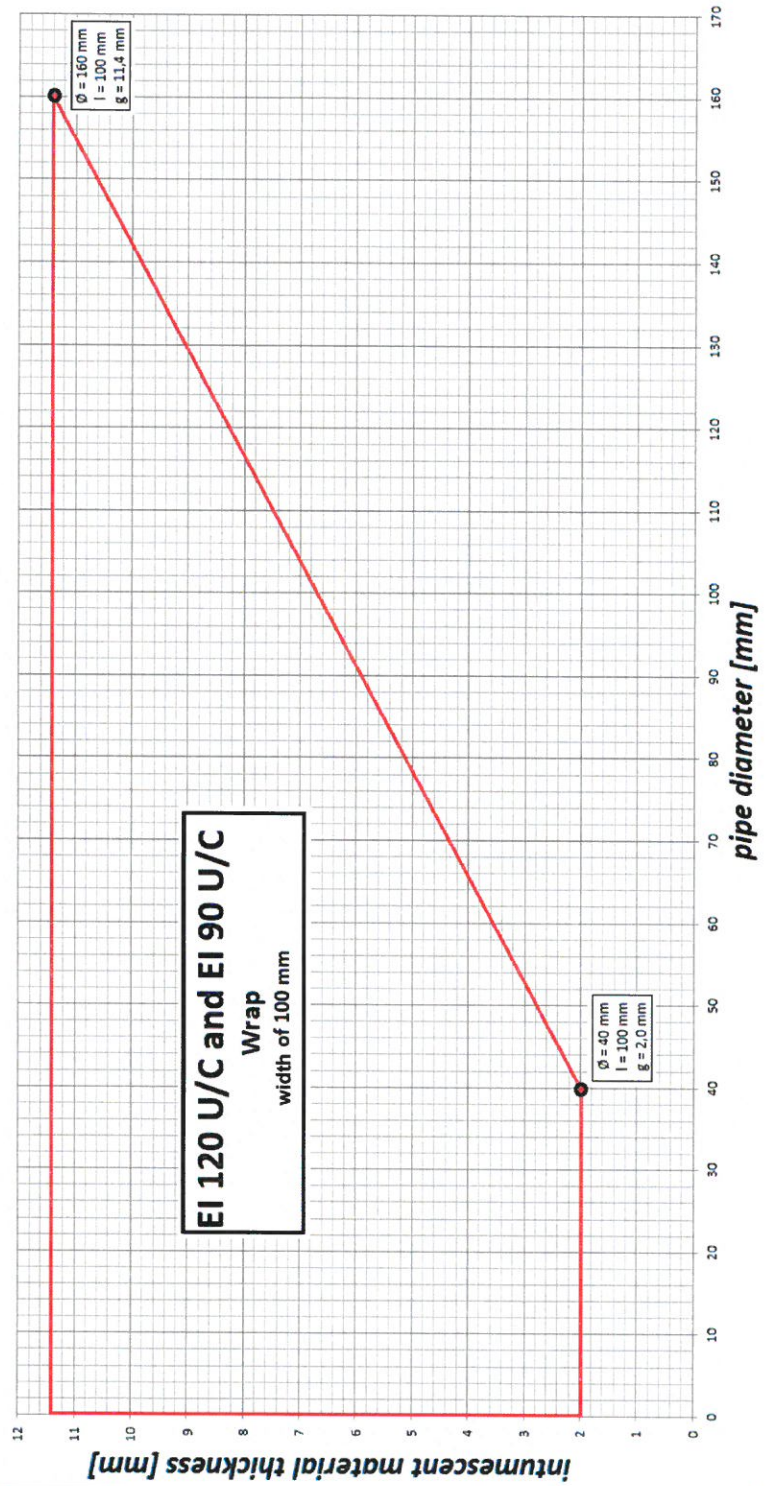
l – intumescent material width, g – intumescent material thickness



Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

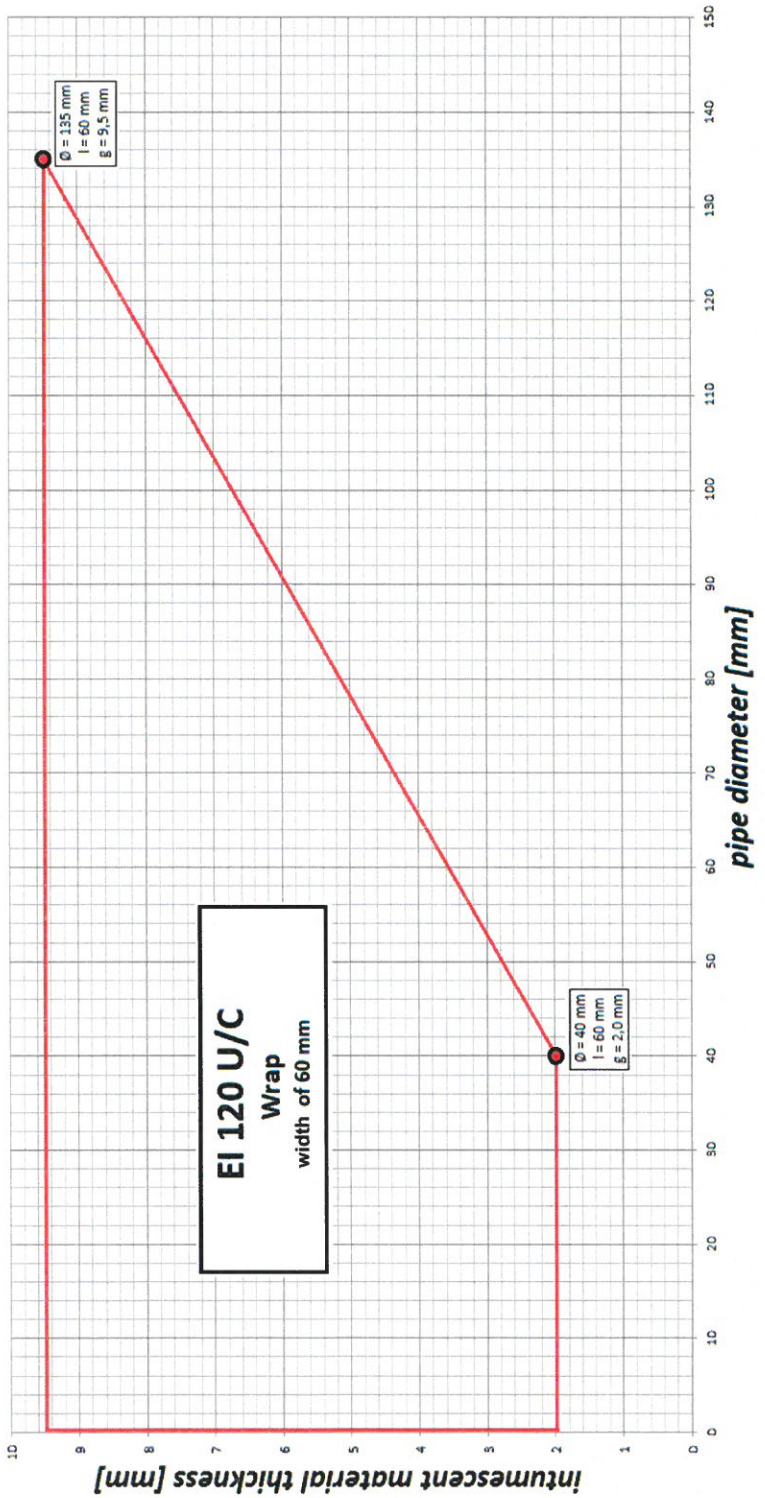
Fig. 3. Range of intumescent material thickness for PE-HD / PE / ABS / SAN + PVC pipes penetration sealed with use of Piro Wrap PW (width of 100 mm), made in accordance with Annex B1.

l – intumescent material width, g – intumescent material thickness



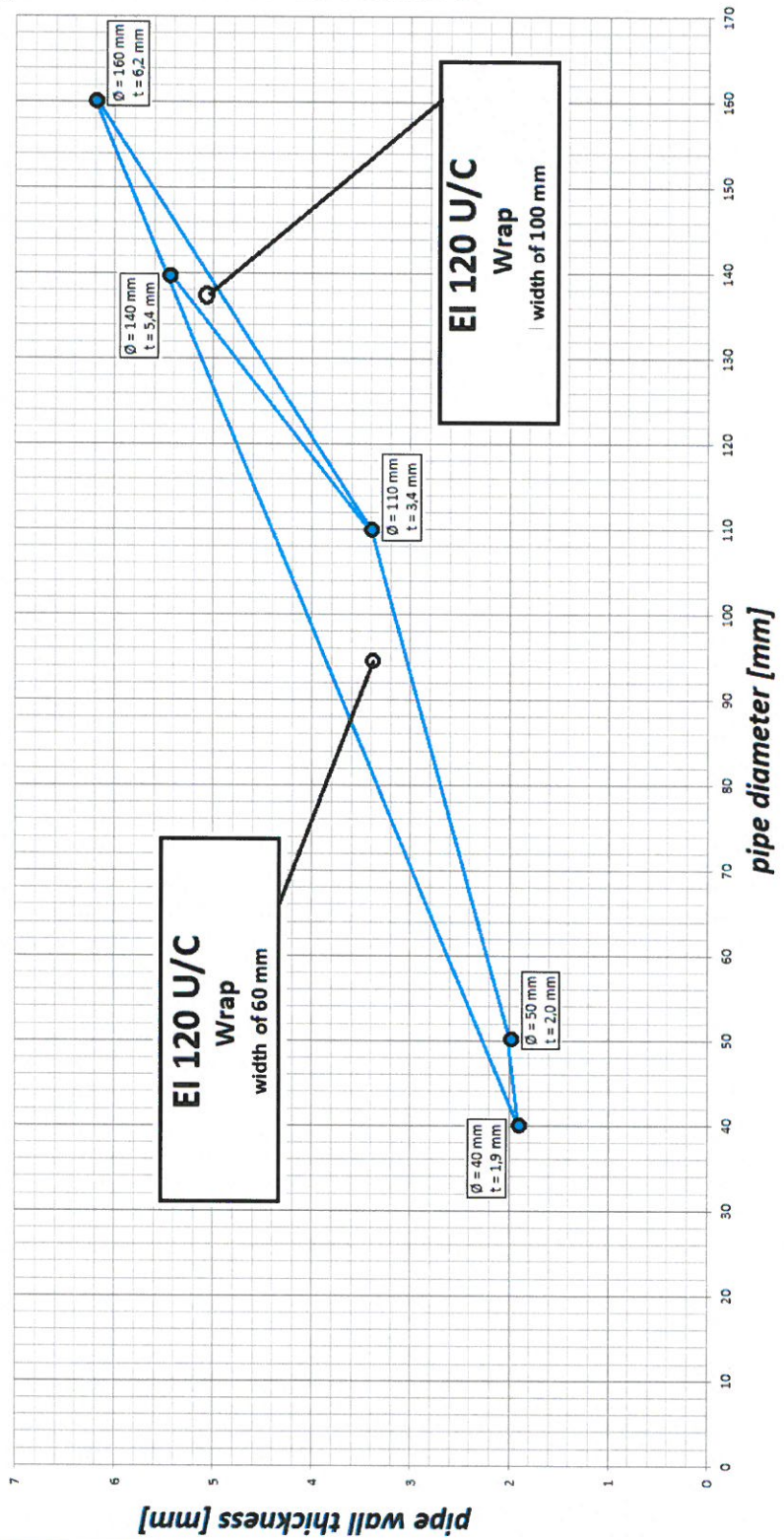
Piro Wrap PW	
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	**Annex C** of European Technical Assessment ETA-17/1064

Fig. 4. Range of intumescent material thickness for PP pipes penetration sealed with use of Piro Wrap PW (width of 60 mm), made in accordance with Annex B1.
l – intumescent material width, g – intumescent material thickness



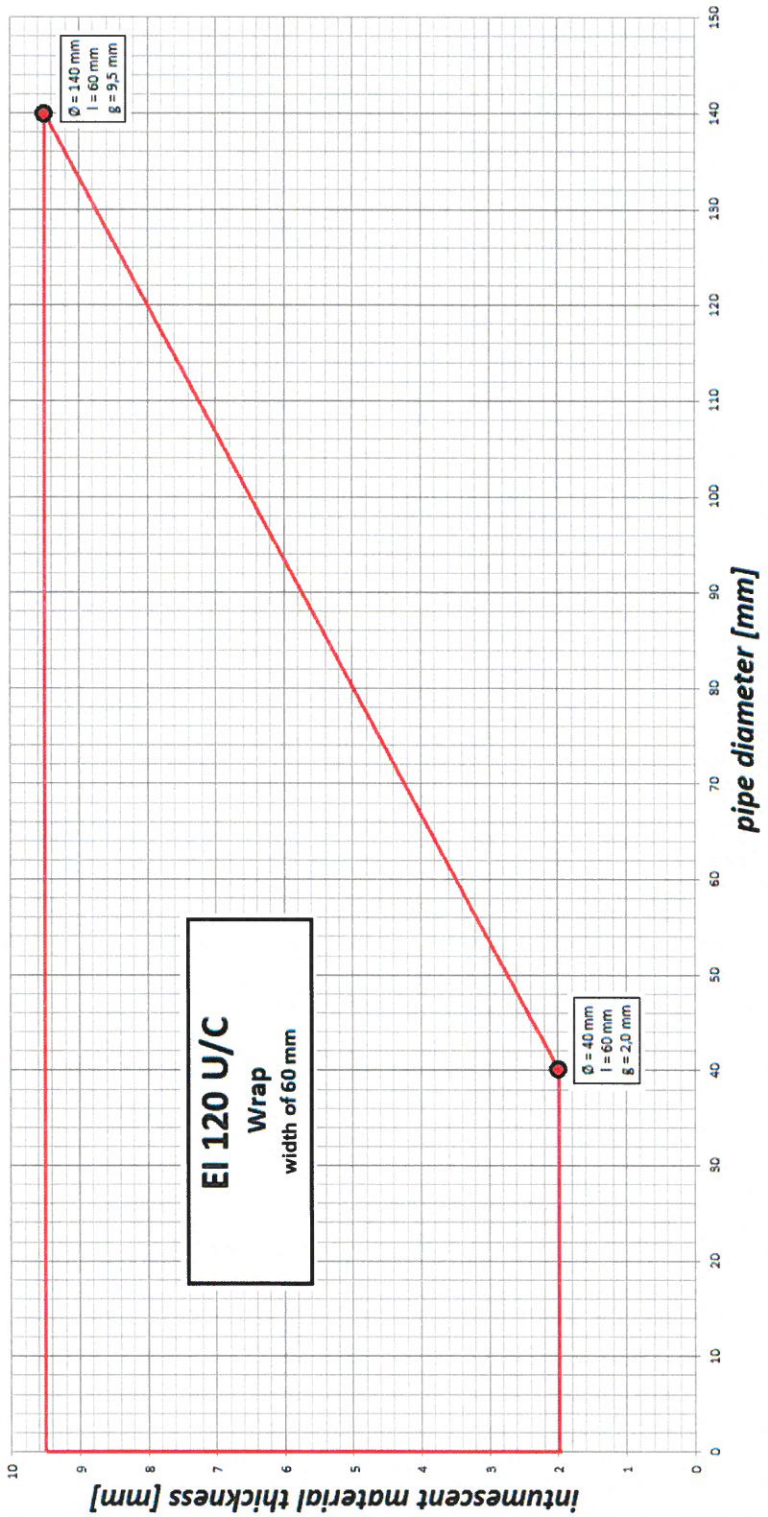
Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 5. Range of PVC-U / PVC-C pipes penetration sealed with use of Piro Wrap PW (width of 60 and 100 mm), made in accordance with Annex B1.



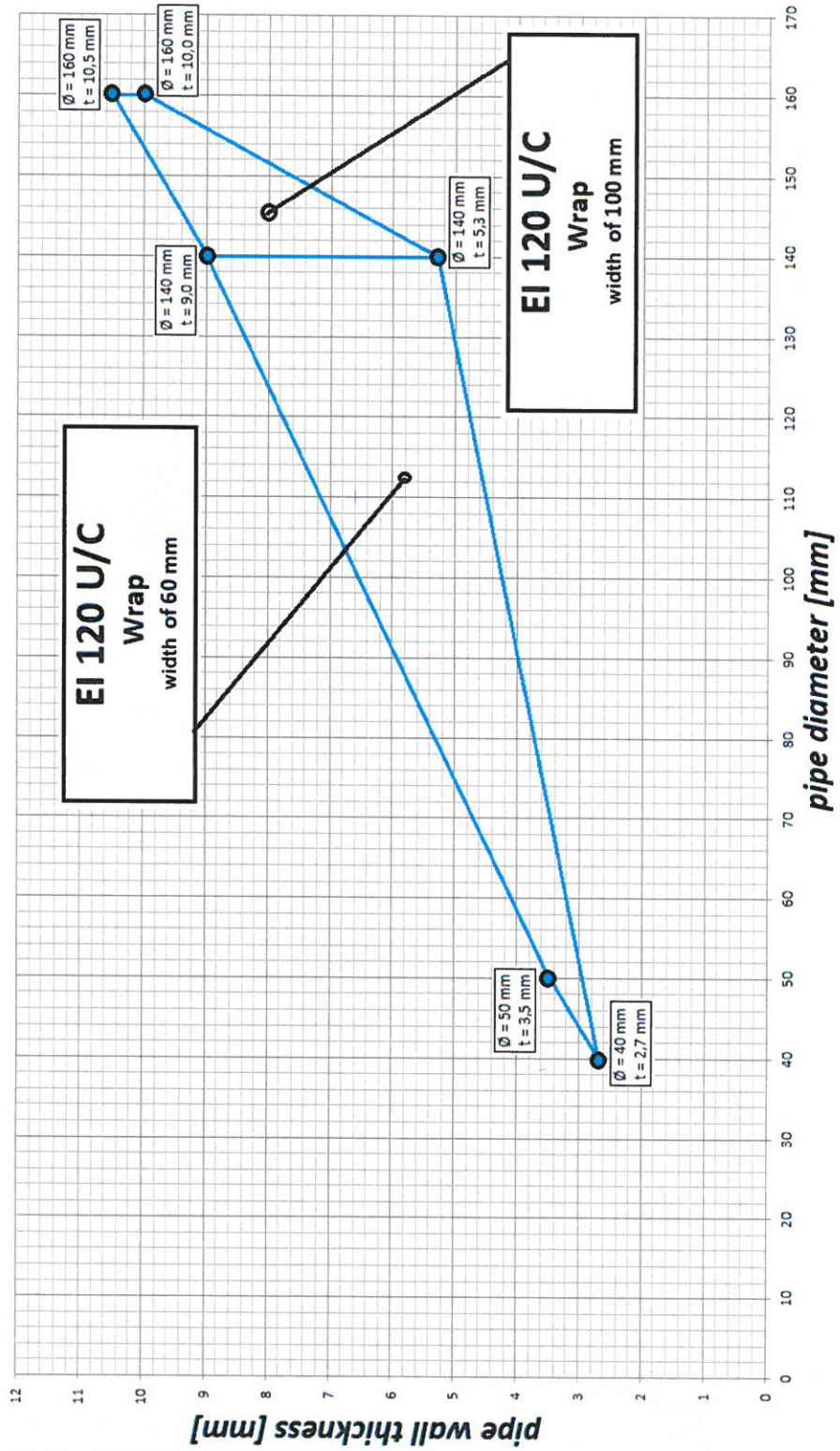
Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 6. Range of intumescent material thickness for PVC-U / PVC-C pipes penetration sealed with use of Piro Wrap PW (width of 60 mm), made in accordance with Annex B1.
l – intumescent material width, g – intumescent material thickness



Piro Wrap PW	**Annex C** of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

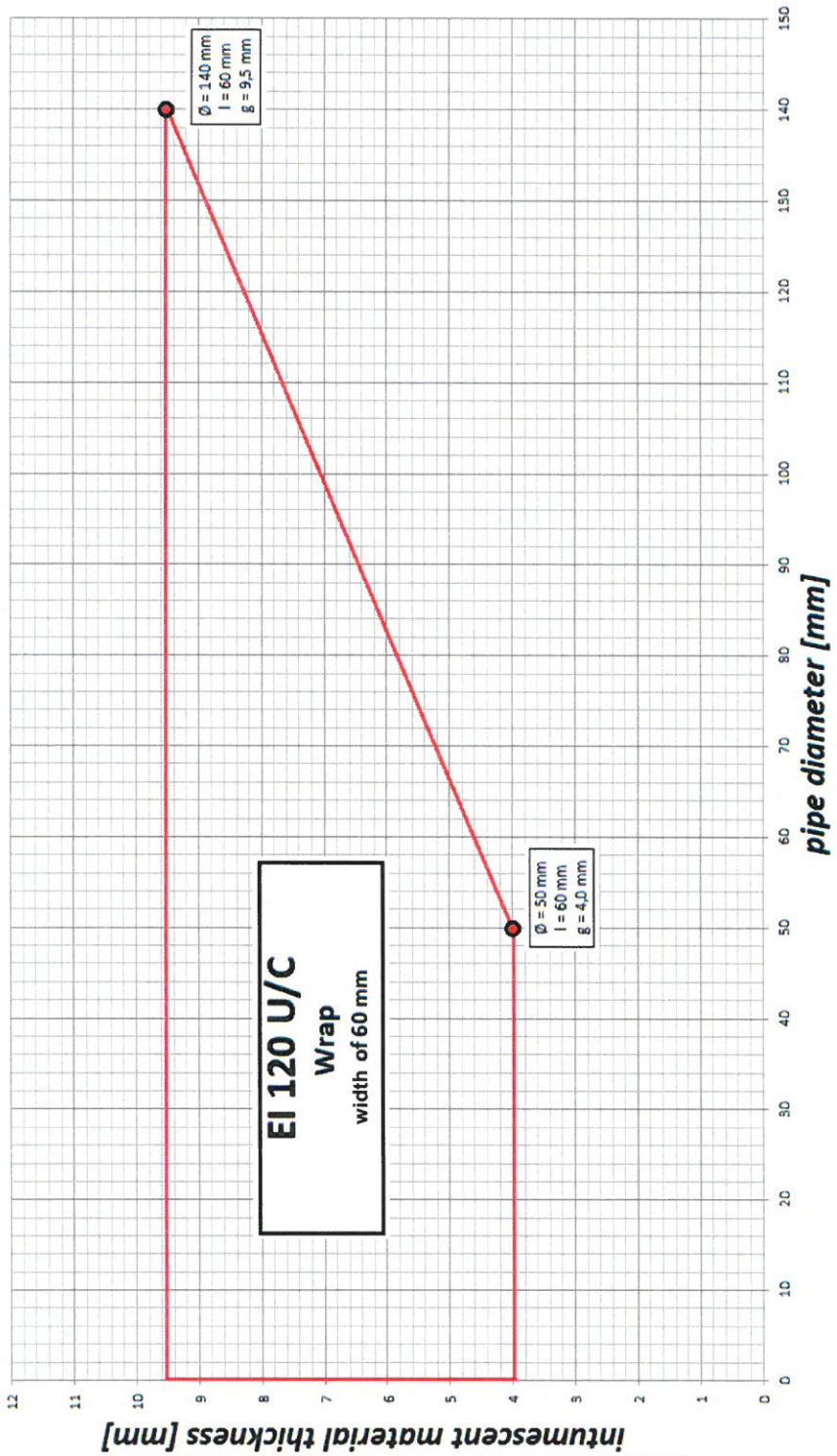
Fig. 7. Range of PE-HD / PE / ABS / SAN + PVC pipes penetration sealed with use of Piro Wrap PW (width of 60 and 100 mm), made in accordance with Annex B3.



Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 8. Range of intumescent material thickness for PVC-U / PVC-C, PE-HD / PE / ABS / SAN + PVC and PP pipes penetration sealed with use of Piro Wrap PW (width of 60 mm), made in accordance with Annex B3.

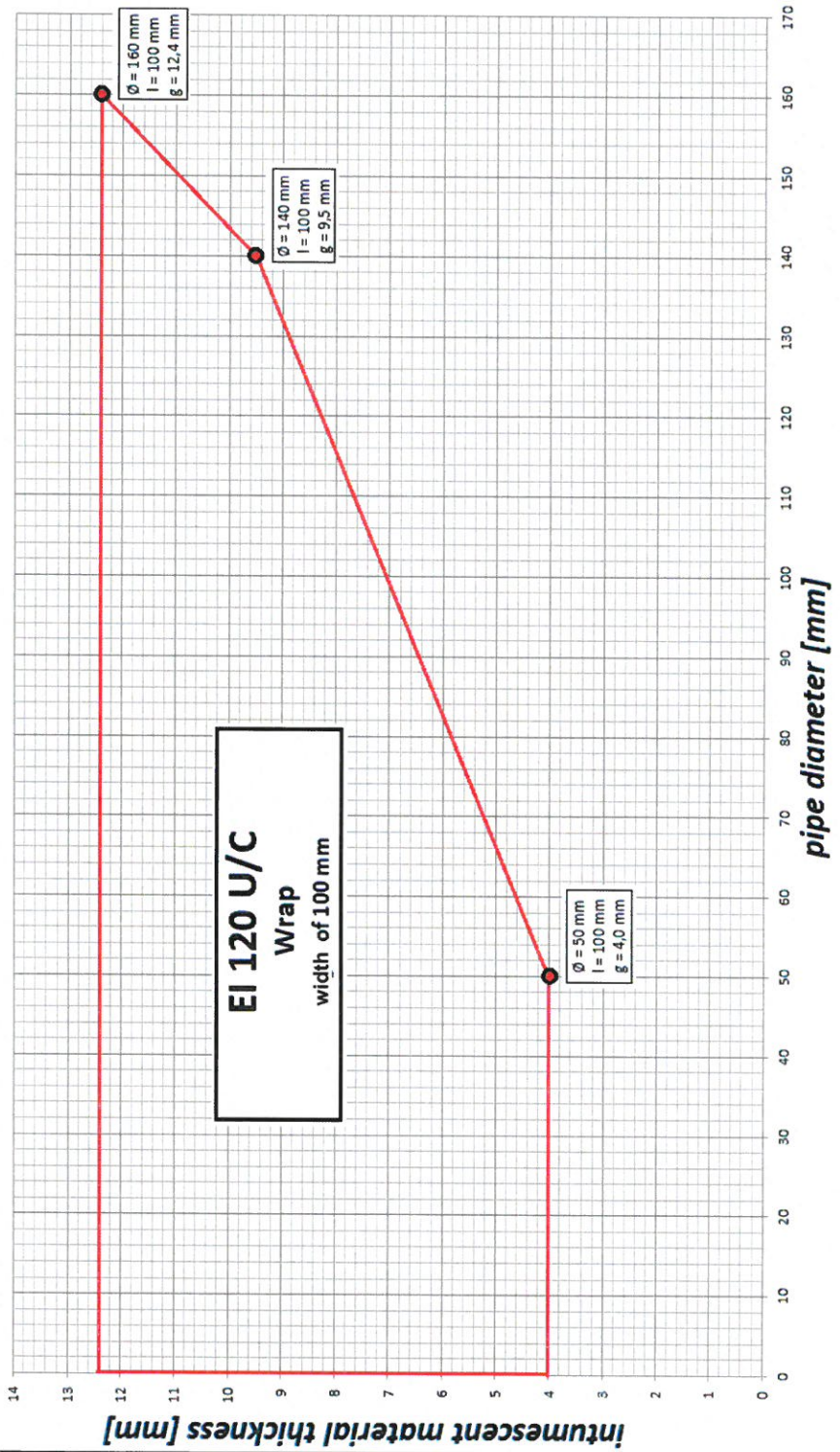
l – intumescent material width, g – intumescent material thickness



Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

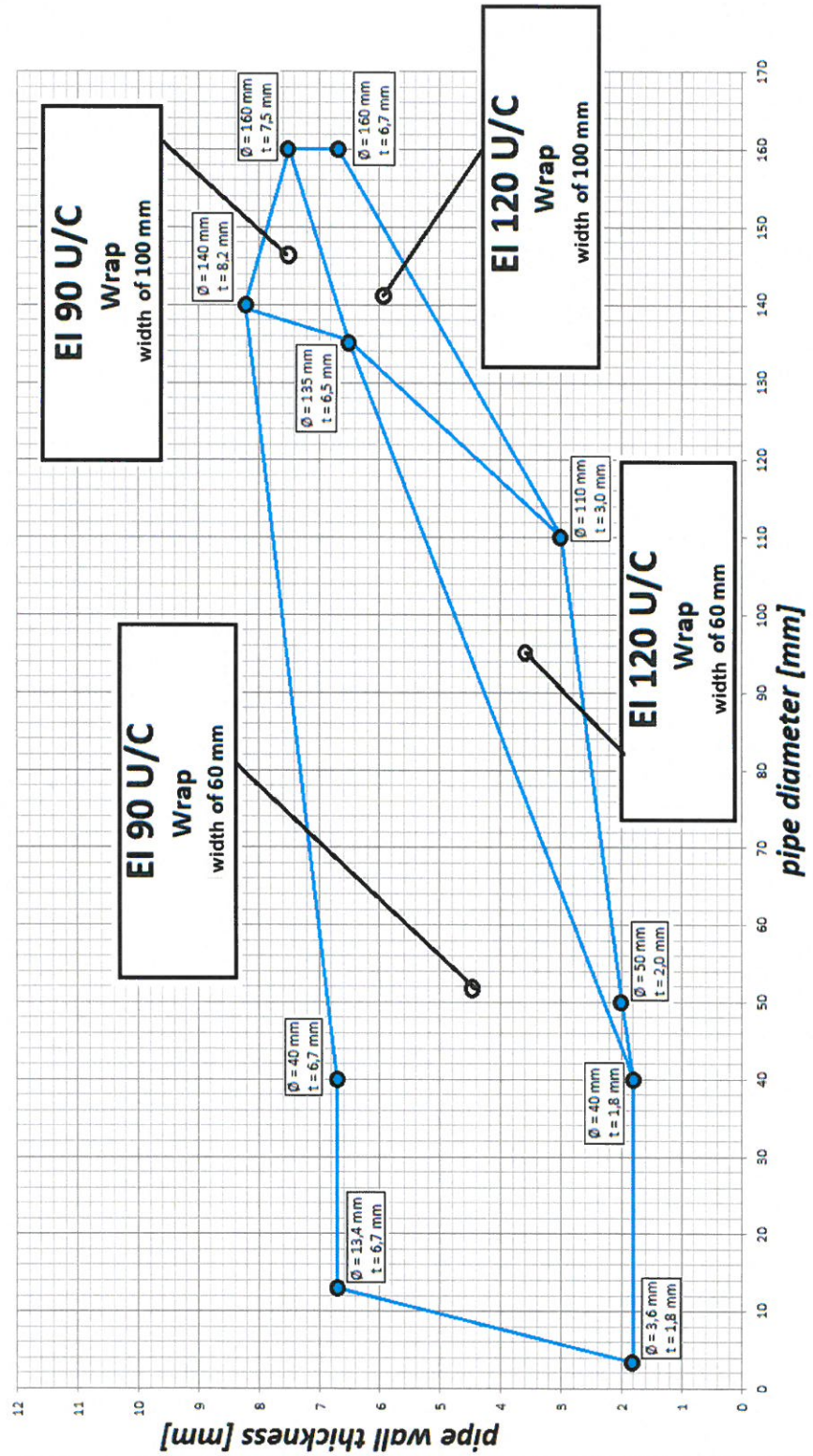
Fig. 9. Range of intumescent material thickness for PVC-U / PVC-C, PE-HD / PE / ABS / SAN + PVC and PP pipes penetration sealed with use of Piro Wrap PW (width of 100 mm), made in accordance with Annex B3.

l – intumescent material width, g – intumescent material thickness



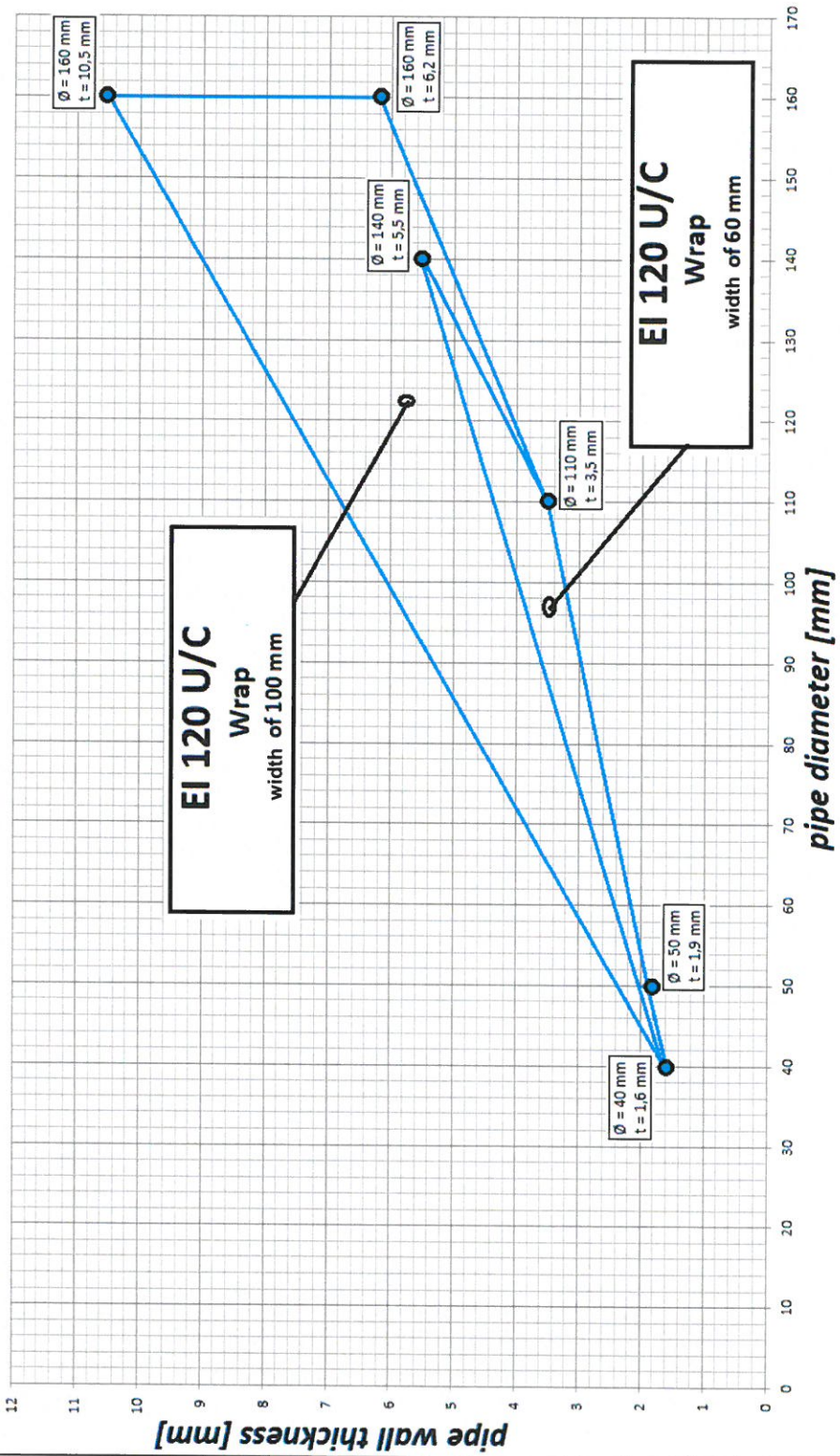
Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 10. Range of PP pipes penetration sealed with use of Piro Wrap PW (width of 60 and 100 mm), made in accordance with Annex B3.



Piro Wrap PW	Annex C of European Technical Assessment ETA-17/1064
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	

Fig. 11. Range of PVC-U / PVC-C pipes penetration sealed with use of Piro Wrap PW (width of 60 and 100 mm), made in accordance with Annex B3.



Piro Wrap PW	
Resistance to fire classification of penetration seals made with use of Piro Wrap PW Ranges of pipes diameter, pipes walls thicknesses and intumescent material thickness	**Annex C** of European Technical Assessment ETA-17/1064