

HENSOMASTIK®

Mixed Penetration Seal EI 30 / EI 60

According to the European Technical Assessment ETA 15/0294

Technical data sheet and assembly instructions for the
HENSOMASTIK® single-board Mixed Penetration Seal



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LS = local insulation continuous in the sealing area | LI = local insulation intermittent in the sealing area

Pipe end configuration	Test condition		
	U/U	C/U	U/C
In the furnace	Open	Closed	Open
On the outside	Open	Open	Closed

NOTE: These assembly instructions are for your consultation. They do not serve in lieu of the details in the underlying European Technical Assessment **ETA 15/0294**. The complete ETA 15/0294 must be printed out and made available at the installation site.

1. Technical description of the HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60

HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60 is a system consisting of a 60 mm thick Hardrock 040 mineral fibre board coated on both sides with **HENSOMASTIK® 5 KS Farbe / viskos** and designed as a seal for metal pipes, plastic pipes, and electric cables serving to restore the fire safety of lightweight and solid wall structures and solid floor structures carrying the various metal supply lines with insulation, plastic pipes, composite pipes, and electric cables.

HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60 does not contain any carcinogenic or mutagenic substances or flame retardants.

HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60 does not contain any dangerous substances as defined in Directive 67/548/EEC and (EC) Directive No. 1272/2008 or on the EGDS Indicative List of Regulated Dangerous Substances with respect to the assembly conditions for the construction product and the resulting release scenarios.

The applicable usage category of **HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60** with respect to BWR 3 (hygiene, health, and environment) is IA/1, S/W3.

2. Technical data of the penetration seal system components

2.1 HENSOMASTIK® 5 KS Farbe, HENSOMASTIK® 5 KS viskos, HENSOMASTIK® 5 KS Spachtel

HENSOMASTIK® 5 KS is an ablative, medium-viscosity, and non-hygroscopic, water-based fire protection coating in the versions “Farbe”, “viskos”, and “Spachtel”. This is a dispersion coating we manufacture ourselves with organic binders, water, mineral fillers, pigments, and additives.

The fire protection coating **HENSOMASTIK® 5 KS** is part of the **Green Product** line at Rudolf Hensel GmbH, classified as “low emission”, and it does not contain any solvents, borates, plasticisers, halogens, formaldehydes, or alkylphenol ethoxylates (APEs).

HENSOMASTIK® 5 KS

- EN 13501-1 classification as an indoor and outdoor construction material
- Free of solvents and silicone
- Weather-proof / UV resistant under DIN 53384
- Age resistant
- Mechanical stability
- Retrofits and subsequent adjustments possible
- Temperature resistant after completion up to –20 °C

Packaging sizes: **HENSOMASTIK® 5 KS** in the versions “Farbe” and “viskos” is delivered in 6 kg / 12.5 kg plastic buckets and in the version “Spachtel” in 310 ml cartridges and 6 kg / 12.5 kg plastic buckets.

Work safety: Processing **HENSOMASTIK® 5 KS** must comply with the regulations for work safety and environmental protection. **GISCODE: M-DF01**

Before using **HENSOMASTIK® 5 KS**, please consult its safety data sheet available as a PDF download from www.rudolf-hensel.de

Storage: The storage and transport temperatures must lie within + 5 °C bis max. + 30 °C (free of frost!). **HENSOMASTIK® 5 KS Farbe / viskos** can be stored for up to twelve months in the original packaging.

HENSOMASTIK® 5 KS Spachtel can be stored for up to twelve months in the original packaging. Carefully seal opened packaging after use!

Technical data and properties

HENSOMASTIK® 5 KS Farbe, HENSOMASTIK® 5 KS viskos, HENSOMASTIK® 5 KS Spachtel

Product versions	HENSOMASTIK® 5 KS Farbe	HENSOMASTIK® 5 KS viskos	HENSOMASTIK® 5 KS Spachtel
Colour	White	White	White
Consistency	Liquid	Viscous	Viscous
Apparent density	1.35 ± 0.2 g/cm ³	1.35 +/- 0.2 g/cm ³	1.46 +/- 0.2 g/cm ³
Usage category with respect to weathering effects	Type X: Also designed for use outdoors	Type X: Also designed for use outdoors	Type X: Also designed for use outdoors
Fire properties as defined in DIN EN 13501-1	Class E	Class E	Class E
VOC content	< 1 g/l	< 1 g/l	< 1 g/l
Classified and approved according to	ETAG 026-2	ETAG 026-2	ETAG 026-2

2.2 Mineral fibre boards

The tested and approved Hardrock 040 mineral fibre boards (complying with DIN EN 13162) in **HENSOMASTIK® Mixed Penetration Seal EI 30/ EI 60** exhibit an apparent density of about 150 kg/m³ and a melting point > 1000 °C and comply with the EN 13501-1 construction material class A1 (non-flammable). Board thickness of the **HENSOMASTIK® single-board Mixed Penetration Seal**: 60 mm

2.3 Pipe collars

AWM II approved by the DIBt of Berlin, from Z-200.2-58, as an emissions-rated construction product, European Technical Assessment ETA-11/0208. **Air Fire Tech Rorcol V30** classified in accordance with EN 13501- 2, European Technical Assessment ETA-13/0758.

2.4 Sectional insulation for non-flammable pipes

Rockwool RS 800 with a melting point ≥ 1.000 °C, non-flammable A₂-s1, d0 according EN 13501-1

2.5 Sectional insulations wrapped in HENSOTHERM® 7 KS Gewebe

HENSOTHERM® 7 KS Gewebe: Construction material approval ETA 13/0092, indoor and outdoor applications, usage categories: Y2/Z1/Z2, highly flexible, fabric secured with clips, straps, or galvanised wire

- 2.5.1 **Armaflex AF**: Euroclass B/B_L-s3,d0 according to EN 13501-1 / **Kaiflex ST**: Euroclass B_L-s3,d0 according to EN 13501-1

- 2.5.2 **Armaflex Ultima, Armaflex LS, Kaiflex KK plus and Klimarock**
Armaflex Ultima: Euroclass BL-s1, d0
Armaflex LS: BL-s2, d0
Kaiflex KK plus: BL-s2, d0
Klimarock: non-flammable, A1

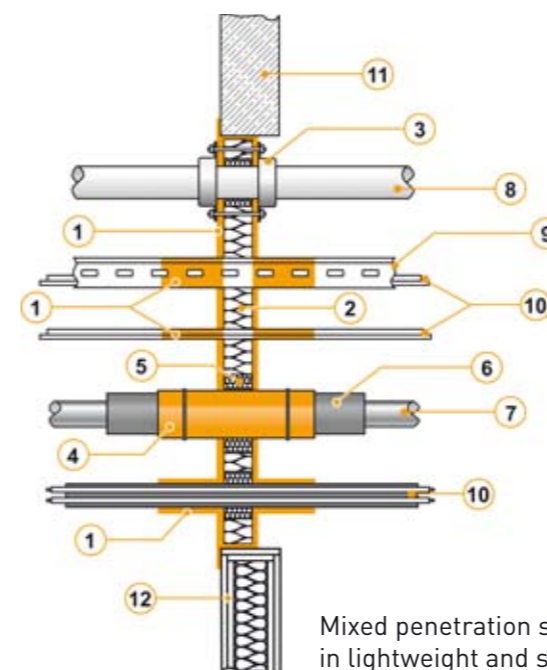
3. Overview of HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60



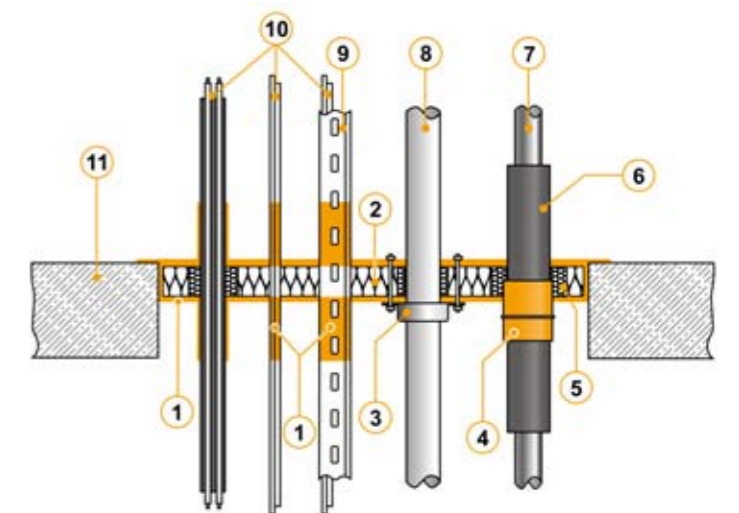
HENSOMASTIK® Mixed Penetration Seal systems are used to seal metal pipes, flammable pipes, and electric cables, thereby restoring the fire safety of wall and floor structures provided with openings for supply lines.

HENSOMASTIK® mixed penetration seals in lightweight and solid walls

- 1 HENSOMASTIK® 5 KS Farbe or HENSOMASTIK® 5 KS viskos
- 2 Hardrock 040 mineral fibre board
- 3 AWM II or Air Fire Tech Rorcol V30
- 4 HENSOTHERM® 7 KS Gewebe
- 5 HENSOMASTIK® 5 KS Spachtel
- 6 Sectional insulation (see pages 4, 2.5 ff) 1 m or continuous
- 7 Non-flammable pipes
- 8 Flammable pipes
- 9 Cable tray
- 10 Electric cables
- 11 Solid wall
- 12 Lightweight wall
- 13 Rockwool RS 800
- 14 Labelling plate



Mixed penetration seal in lightweight and solid wall



Mixed penetration seal in solid ceiling

4. Applications of HENSOMASTIK® Mixed Penetration Seal EI30/ EI60

Lightweight walls

The wall must be at least 100 mm thick and consist of a wood or steel strut frame* lined on both sides with at least two layers of 12.5mm thick boards.

* There must be a minimum distance of 100 mm between the seal and the supports, and this gap must be filled with at least 100 mm of Class A1 or A2 insulating material (as defined in EN 13501-1). The supporting structure must have been classified for the required fire resistance period as defined in EN 13501-2.

Solid structural walls

The wall must be at least 100 mm thick and be of concrete, aerated concrete, or masonry with a minimum density of 650 kg/m³.

HENSOMASTIK® Mixed Penetration Seal in lightweight and solid walls

Installation situation	Thickness of Hardrock 040 mineral fibre board for EI30 / EI60	Max sealant size in m ²
Lightweight wall ≥ 100 mm	1 x 60 mm	2.4 m ² (2000 mm x 1200 mm)
Solid wall ≥ 100 mm	1 x 60 mm	2.4 m ² (2000 mm x 1200 mm)

Solid ceilings

The ceiling must be at least 150 mm thick and be of concrete, aerated concrete, or masonry with a minimum density of 650 kg/m³.

HENSOMASTIK® Mixed Penetration Seal in solid ceilings

Installation situation	Thickness of Hardrock 040 mineral fibre board for EI30 / EI60	Max sealant size in m ²
Solid wall ≥ 150 mm	1 x 60 mm	1.8 m ² (1800 mm x 1000 mm)

HENSOMASTIK® Mixed Penetration Seal systems EI30 / EI60 can be used as sealant in conjunction with insulated metal pipes, combustible pipes, and electric cables, single or bundled.

The maximum **sealing size in lightweight and solid wall structures** is 2000 mm × 1200 mm (H×W) and in solid ceiling structures 1800 mm × 1000 mm.

Also an empty seal can be installed. Supply lines must be protected at a max distance of 250 mm from both sides of the wall structure and from the top of the floor structure.

5. Assembly instructions for HENSOMASTIK® Mixed Penetration Seal EI30/ EI60 in lightweight and solid wall

HENSOMASTIK® Mixed Penetration Seals may be applied by trained and qualified personnel only.

The Mixed Penetration Seal system may not be processed at material, substrate, or air temperatures below +5 °C or at air humidities exceeding 80%. Before installation, the reveals and the rough opening of the structural element must be cleaned and all loose parts removed!

Up to 60% of HENSOMASTIK® Mixed Penetration Seal can be covered with supply lines. Retrofits on HENSOMASTIK® Mixed Penetration Seal are possible when 60% of the area has not yet been covered.

Step 1: Transfer the measurements of the rough opening of the structural element (length × width) to the boards, and cut these to size.

These must be used to cut out the individual pieces that must be custom-fitted in all openings between the lines and between these and the reveal.

TIP: A contour gauge (template) can be used to transfer electric cables, pipes, and cable runs to the fire protection board.

Step 2: The outsides of the cut mineral wool boards are coated with a fire protection coating at least 1 mm thick in the dried state.

TIP: This can be obtained in only the one operation with HENSOMASTIK® 5 KS viskos as the most cost-effective solution after the cut pieces have been fitted.

Alternatively, prefabricated or ready-coated mineral fibre boards can be used as the cut pieces.

Step 3: Before installation, the reveal and the cut edges of the mineral fibre boards must be coated with HENSOMASTIK® 5 KS Farbe, HENSOMASTIK® 5 KS viskos, or HENSOMASTIK® 5 KS Spachtel. Not until afterwards may the cut pieces be installed in the carcass opening.

Step 4: Gaps, joins, and gussets are filled completely with HENSOMASTIK® 5 KS SP. Gaps, joins, or gussets wider than 10 mm are first filled with loose mineral fibre material towards the centre of the Mixed Penetration Seal and then filled with HENSOMASTIK® 5 KS Sachtel.

Bear in mind that the circumferential gap around pipes may not be wider than 10 mm!

Step 5: Tape off the circumference of the opening 2 cm above the rough opening of the structural element. This will allow you to coat the circumferences of the transitions/join between the mineral fibre boards and the wall or the ceiling at least 2 cm beyond the mineral fibre board with at least 1 mm (dry film thickness) of HENSOMASTIK® 5 KS Farbe or HENSOMASTIK® 5 KS viskos.

For **wall installations**, cables and cable runs must be coated 20 cm as measured from the wall/sealant with at least 1 mm (dry film thickness) of HENSOMASTIK® 5 KS Farbe or HENSOMASTIK® 5 KS viskos.

For **ceiling installations**, cables and cable trays must be coated 10 cm as measured from the ceiling/sealant with at least 1 mm (dry film thickness) of HENSOMASTIK® 5 KS Farbe or HENSOMASTIK® 5 KS viskos.

IMPORTANT! Ceiling sealant must be protected additionally against access!

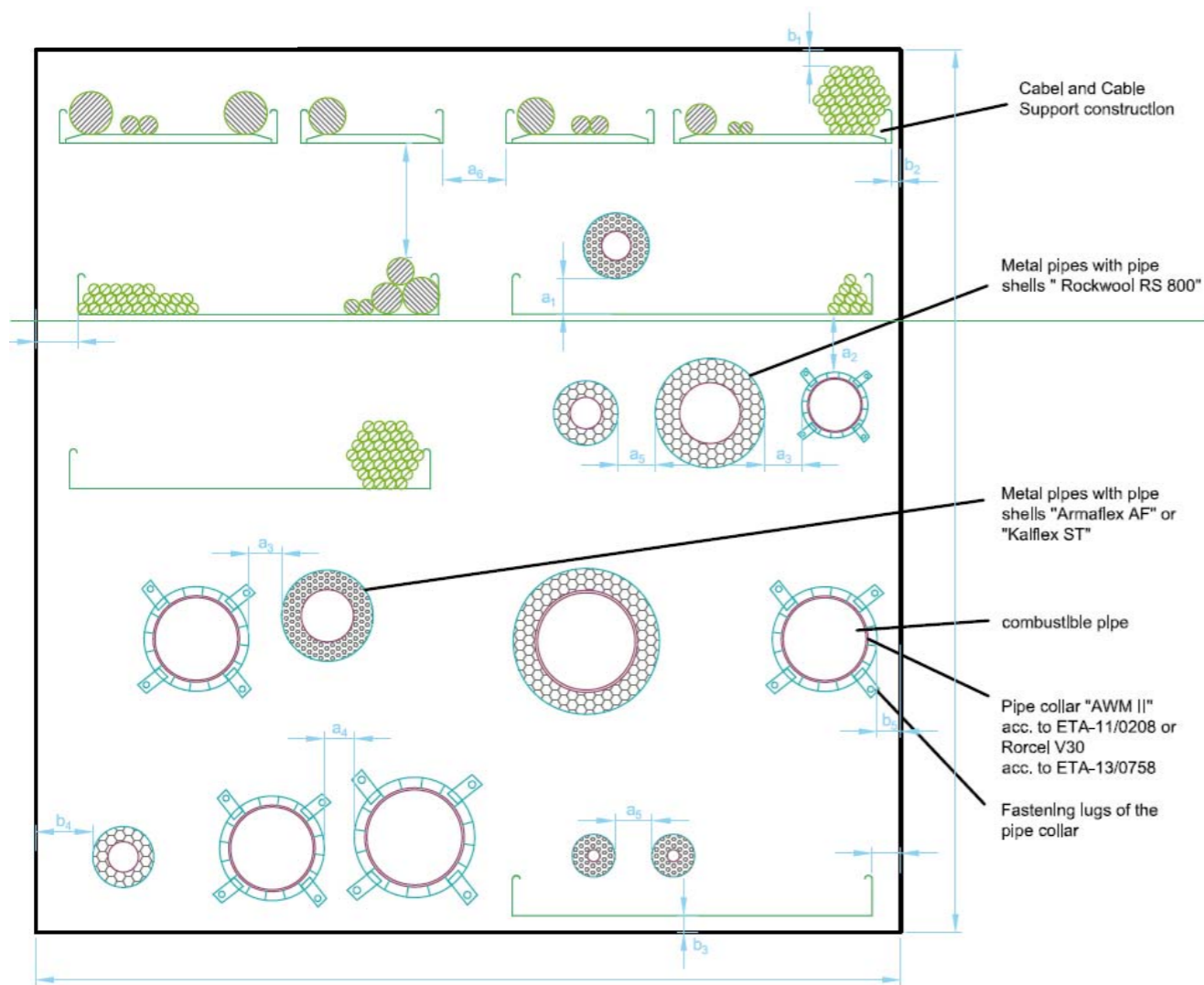
Finally, the ready HENSOMASTIK® Mixed Penetration Seal is fitted visibly and permanently with a **labelling plate** containing all the details and provided for this purpose.

This labelling plate is available from Rudolf Hensel GmbH.

NOTE: These assembly instructions are for your consultation. They do not serve in lieu of the details in the underlying European Technical Assessment **ETA 15/0294**. The complete ETA 15/0294 must be printed out and made available at the installation site.

5. Assembly instructions for HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60 in lightweight and solid wall

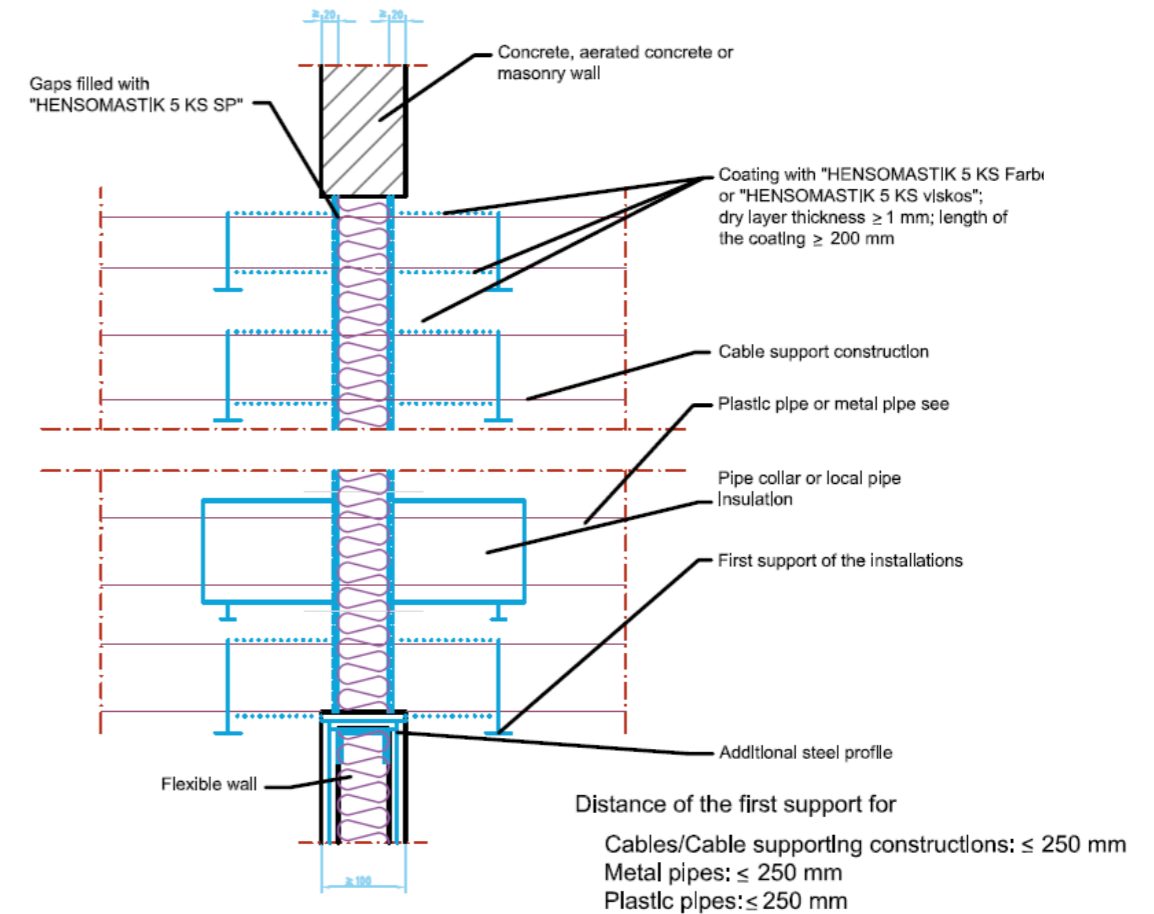
5.0 Overview and measurements in the single-board Mixed Penetration Seal "lightweight and solid wall"



Maximum seal size: 2000 mm high x 1200 mm wide

- a₁: between cable/cable trays and metal pipes ≥ 30 mm
- a₂: between cable/cable trays and plastic pipes ≥ 30 mm
- a₃: between metal pipes and plastic pipes ≥ 25 mm
- a₄: between plastic pipes ≥ 15 mm
- a₅: between metal pipes ≥ 25 mm
- a₆: between cable trays ≥ 30 mm
- b₁: between cable/cable trays and the upper seal edge: ≥ 25 mm
- b₂: between cable/cable trays and the side seal edge: ≥ 25 mm
- b₃: between cable/cable trays and the lower seal edge: ≥ 25 mm
- b₄: between metal pipes and the side seal edge: ≥ 25 mm
- b₅: between plastic pipes and the side seal edge: ≥ 25 mm
- Distance 1st support service ≤ 250 mm

5.1 Application and fitting with electric cables EI 30 / EI 60

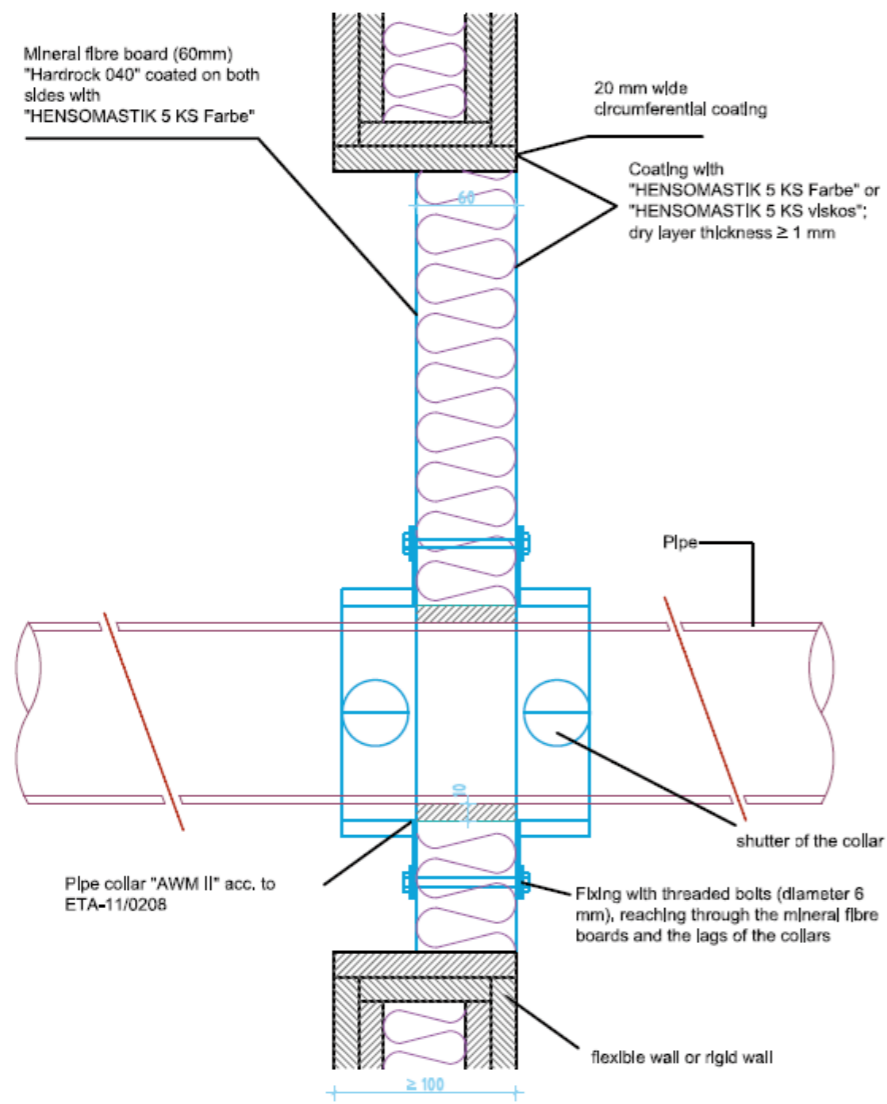


Services	Types
Cables	<ul style="list-style-type: none"> • Sheathed electrical cables up to 80 mm diameter • Telecom cables up to 21 mm diameter
Cable bundles	<ul style="list-style-type: none"> • Bundles of the above up to 100 mm in diameter
Cable Supports	<ul style="list-style-type: none"> • Perforated and unperforated steel cable trays and ladders
Plastic pipes with AWM II Light pipe collars	<ul style="list-style-type: none"> • PE pipes in accordance with EN 1519-1, EN 12666-1, EN12201-2 • Friaphon (by FRIATEC) pipes
Plastic pipes with Air Fire Tech Rorcel V30 pipe collars	<ul style="list-style-type: none"> • PVC-U pipes in accordance with EN 1329-1, EN 1453-1, EN 1452-1 • PE pipes in accordance with EN 1519-1, EN 12666-1, EN12201-2 • PP pipes in accordance with EN 1451-1
Metal pipes with Rockwool RS800 (LI) insulation	<ul style="list-style-type: none"> • Copper • Mild & stainless steel • Cast Iron
Metal pipes with Rockwool RS800 (LS) insulation	<ul style="list-style-type: none"> • Copper • Mild & stainless steel • Cast Iron
Metal pipes with Armaflex AF (LS) insulation	<ul style="list-style-type: none"> • Copper • Mild & stainless steel • Cast Iron
Metal pipes with Kalflex ST (LS) insulation	<ul style="list-style-type: none"> • Copper • Mild & stainless steel • Cast Iron

Services	Insulation/Coating	Classification
Sheathed electrical cables up to 80 mm diameter	1 mm DFT HENSOMASTIK 5KS Farbe extending 200 mm from both faces of the seal	EI 60
Telecoms cables up to 21 mm diameter		
Bundles of above cables up to 100 mm diameter		
Cable supports		

5.2 Application and fitting with flammable pipes EI 30 – EI 90

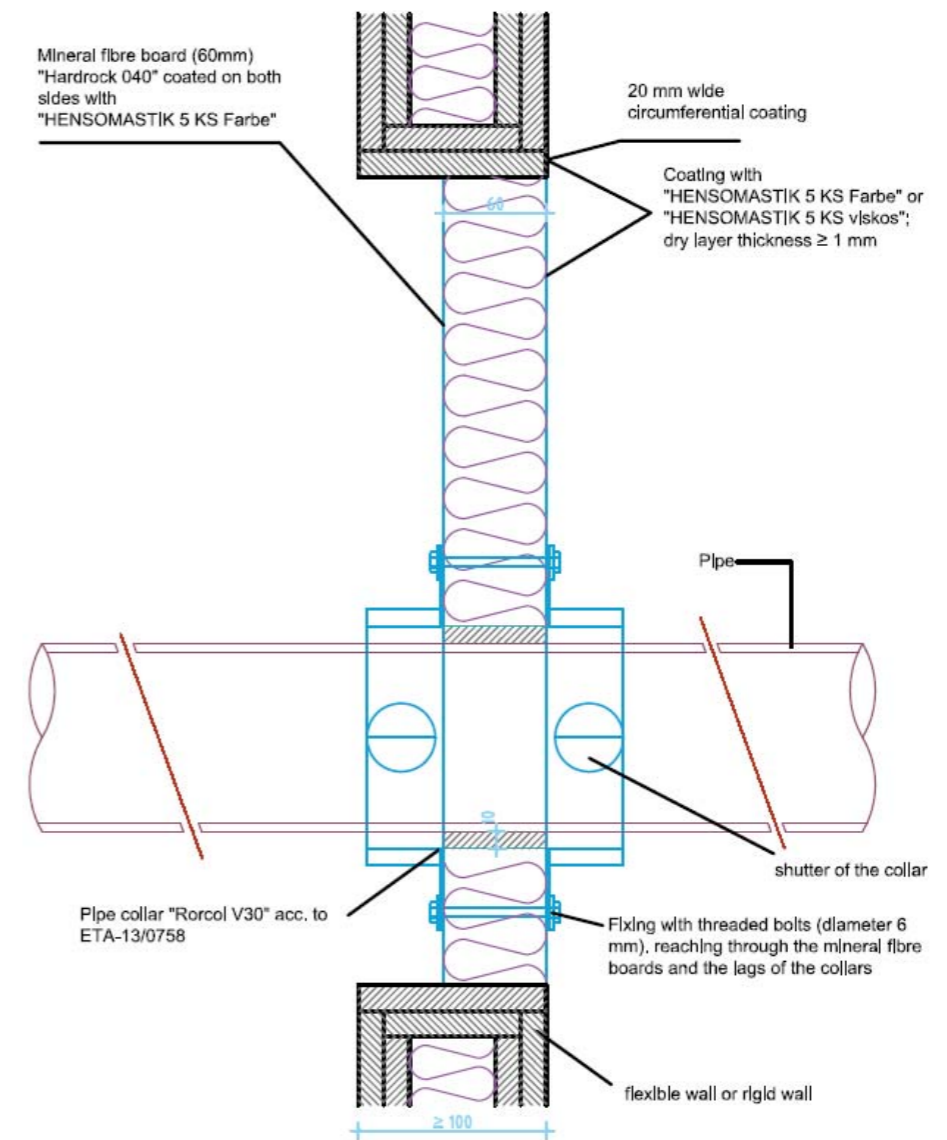
5.2.1 Flammable pipes with pipe collar AWM II EI 30 / EI 60 "U/U"



Dimensions in mm

Services	Pipe diameter mm	Pipe wall thickness mm	Collar inlay size mm	Classification
PE pipe	40	3	75 x 6	EI 60 U/U
	50	3		
	56	3		
	75	3		
	90	3.5		
	110	4.3		
Friaphon pipe	125	4.9	75 x 12	
	52	2.8	75 x 6	
	78	4.9		
	110	5.3		
	135	5.6	75 x 12	

5.2.2 Flammable pipes with pipe collar Air Fire Tech Rorcol V30 EI 30 / EI 60 / EI 90 "U/U"

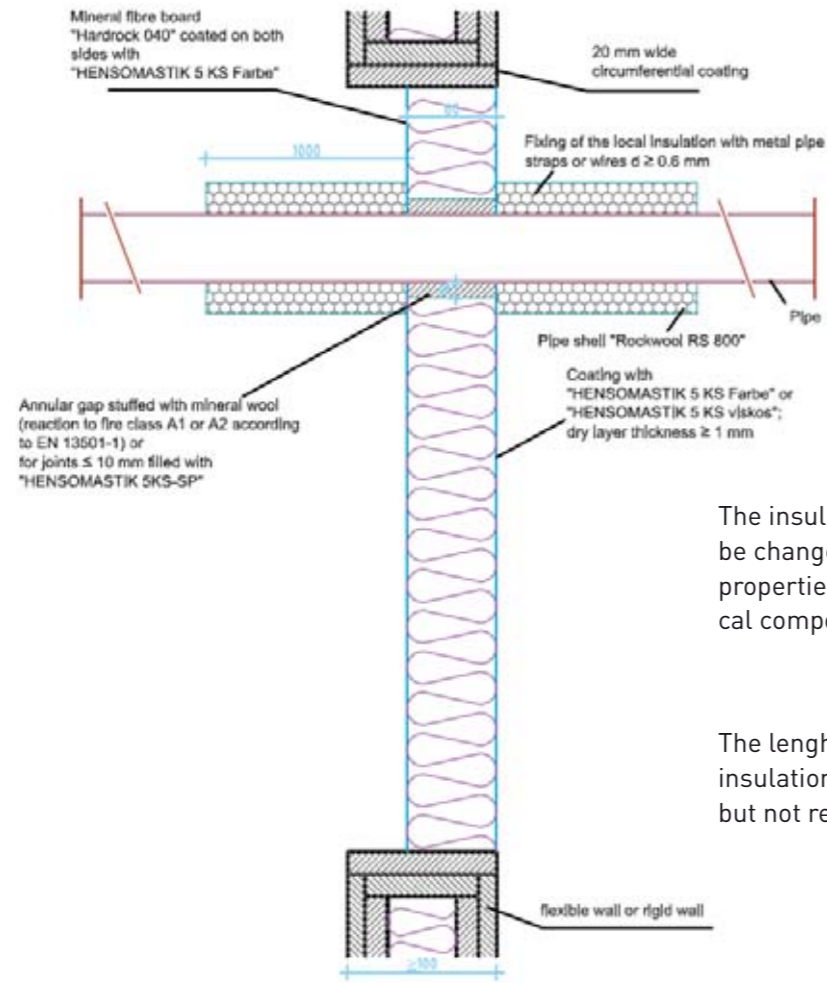


Services	Pipe diameter mm	Pipe wall thickness mm	Collar designation and inlay size mm	Classification
PVC-U pipe	50	1.8-9.2	BRM/V30/DN56 31 x 5	EI 90 U/U *
	70	2.0-9.2	BRM/V30/DN63 31 x 7.5	
	90	2.2-9.2	BRM/V30/DN10 31 x 10	
	125	2.5-9.2	BRM/V30/DN125 31 x 12.5	
PE pipe	50	1.8-11.4	BRM/V30/DN56 31 x 5	
	70	2.0-11.4	BRM/V30/DN63 31 x 7.5	
	90	2.5-11.4	BRM/V30/DN10 31 x 10	
	125	3.1-11.4	BRM/V30/DN125 31 x 12.5	
PP pipe	50	1.8-11.4	BRM/V30/DN56 31 x 5	
	70	2.0-11.4	BRM/V30/DN63 31 x 7.5	
	90	2.5-11.4	BRM/V30/DN10 31 x 10	
	125	3.1-11.4	BRM/V30/DN125 31 x 12.5	

* U/C, C/U and C/C classifications are also applicable

5.3 Application and fitting with **non-flammable pipes EI 30 – EI 90**

5.3.1 **Non-flammable pipes** of steel & copper
with sectional insulation Rockwool RS 800 (LI) (2 m) EI 30 / EI 60 “U/C”

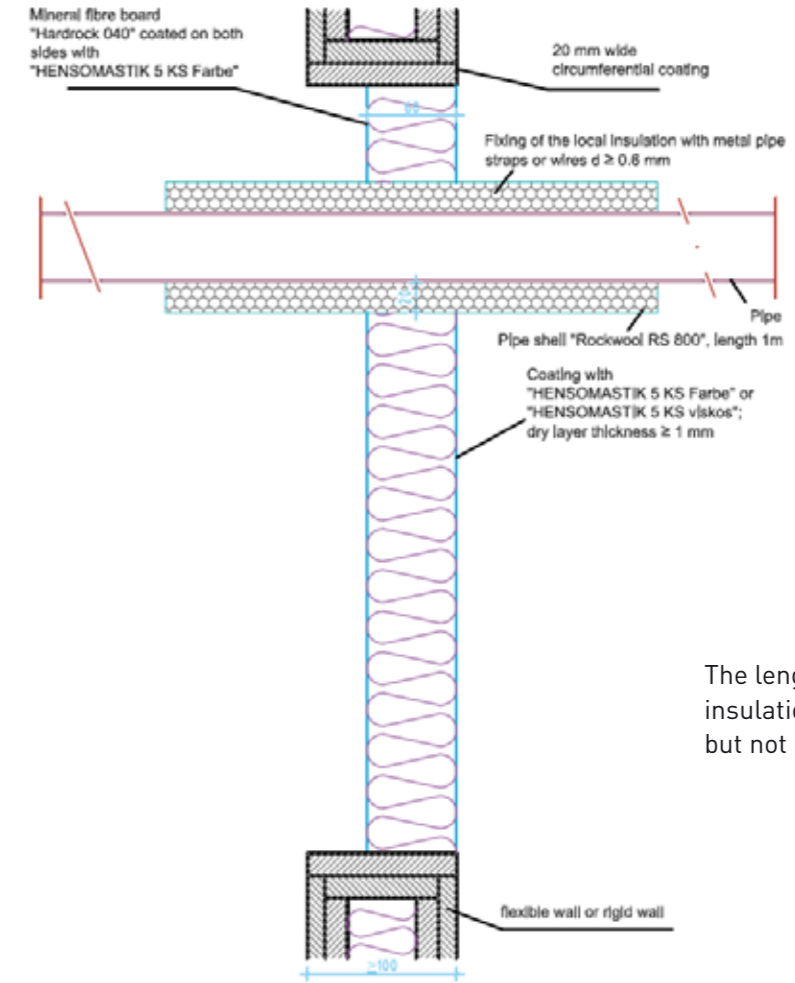


The insulation material can be changed, if it has the same properties (density and chemical composition).

The length of the local insulation may be increased, but not reduced.

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 22	1.0-11	20 (min.)	EI 60 U/C
	Up to 48.3	2.6-14.2		
	Up to 139.7	4.0-14.2	30 (min.)	
	Illustrated classified pipe dimensions			
Copper pipe	Up to 22	1.0-11	20 (min.)	EI 60 U/C
	Up to 42	1.5-14.2		
	Up to 88.9	2.0-14.2	30 (min.)	
	Illustrated classified pipe dimensions			

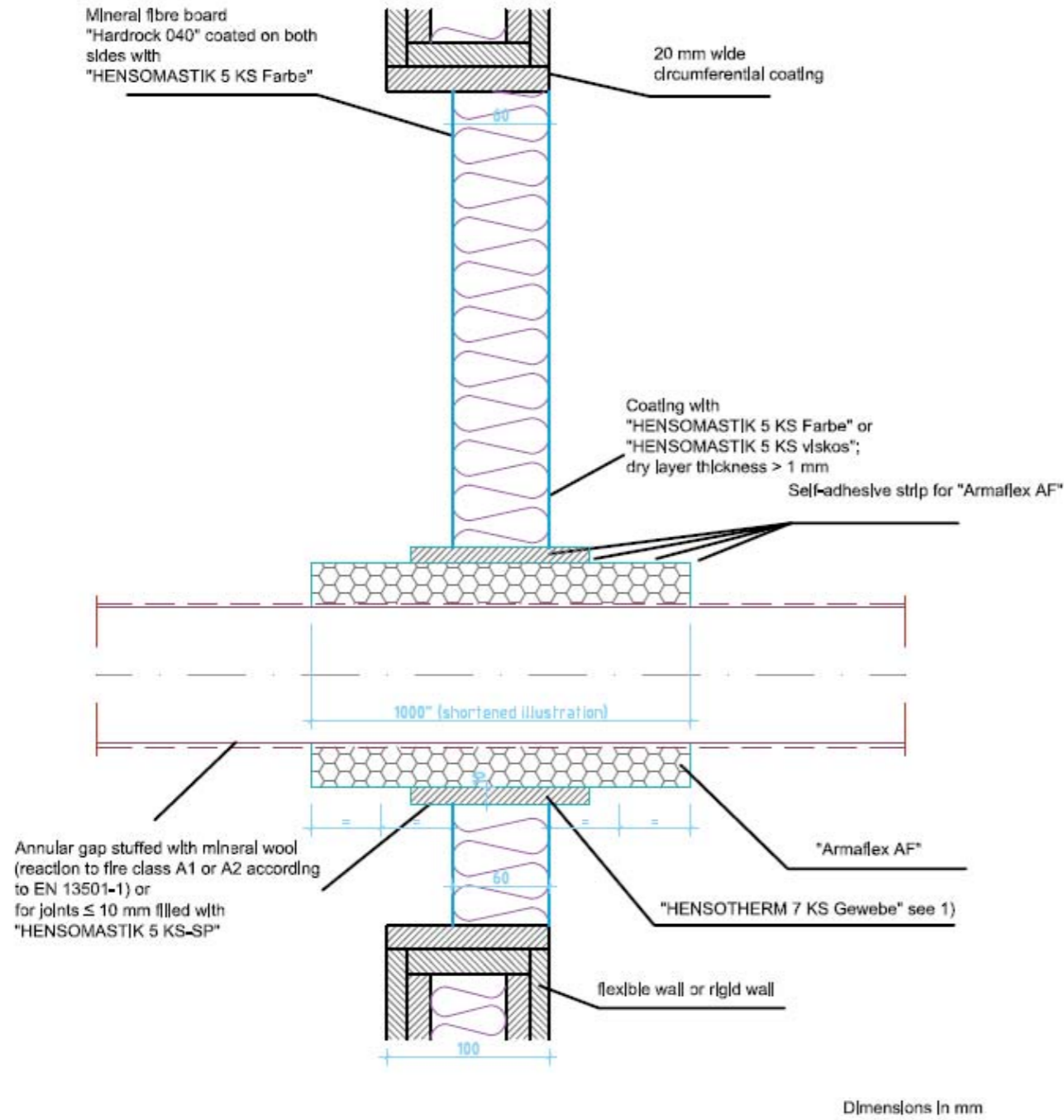
5.3.2 **Non-flammable pipes** of steel & copper
with sectional insulation Rockwool RS 800 (LS) (1 m) EI30 / EI60 “C/U”



The length of the local insulation may be increased, but not reduced.

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification	
Steel or cast iron pipe	Up to 15	1.0-7.5	20	EI 90 C/U	
	Up to 54	1.5-14.2			
	Up to 139.7	4.0-14.2	30		
	Illustrated classified pipe dimensions				
Copper pipe	Up to 15	1.0-7.5	20	EI 90 C/U	
	Up to 54	1.5-14.2			
	Illustrated classified pipe dimensions				

5.3.3 Non-flammable pipes of steel & copper
with insulation Armaflex AF and HENSOTHERM® 7 KS Gewebe EI 30 – EI 90 “C/U”



1) Pipe and insulation is required to be wrapped with one layer HENSOTHERM 7 KS Gewebe bandage 125 mm long, to both sides of the penetration seal such that they are directly in contact at mid - depth of the seal and extend 95 mm from both faces of the penetration seal. The single layer of bandage shall be overlapped by 10 mm.

The length of the local insulation may be increased but not reduced.

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 10	1.0-5.0	11	EI 60 C/U
	Up to 22	1.0-11	18	
	Up to 54	1.5-14.2	21	
	Up to 60.3	2.9-14.2	29	
	Up to 88.9	3.2-14.2	30.5	

Illustrated classified pipe dimensions

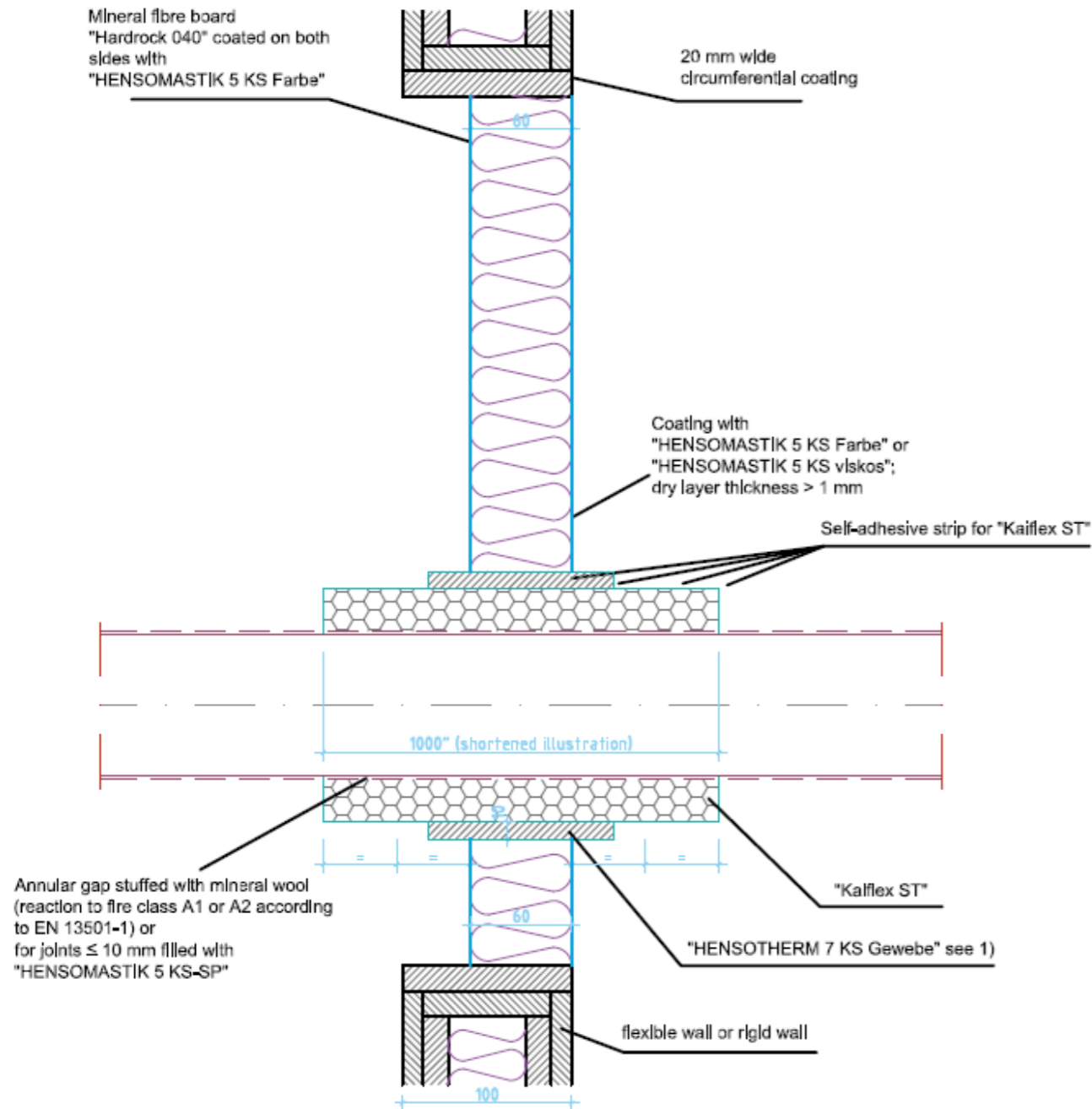
Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 10	1.0-5.0	11	EI 90 C/U
	Up to 54	1.5-14.2	21	
	Up to 60.3	2.9-14.2	29	

Illustrated classified pipe dimensions

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Copper pipe	Up to 10	1.0-5.0	11	EI 90 C/U
	Up to 22	1.0-11	18	
	Up to 54	1.5-14.2	21	

Illustrated classified pipe dimensions

5.3.4 Non-flammable pipes of steel & copper
with insulation Kaiflex ST and HENSOTHERM® 7 KS Gewebe EI 30 / EI 60 "C/U"



1) Pipe and insulation is required to be wrapped with one layer HENSOTHERM 7 KS Gewebe bandage 125 mm long, to both sides of the penetration seal such that they are directly in contact at mid - depth of the seal and extend 95 mm from both faces of the penetration seal. The single layer of bandage shall be overlapped by 10 mm.

The length of the local insulation may be increased but not reduced.

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness x internal diameter mm	Classification
Steel or cast iron pipe	Up to 10	1.0-5.0	9x10	EI 60 C/U
	Up to 22	1.0-11	9x22	
	Up to 54	1.5-14.2	19x54	
	Up to 60.3	2.9-14.2	25x60	

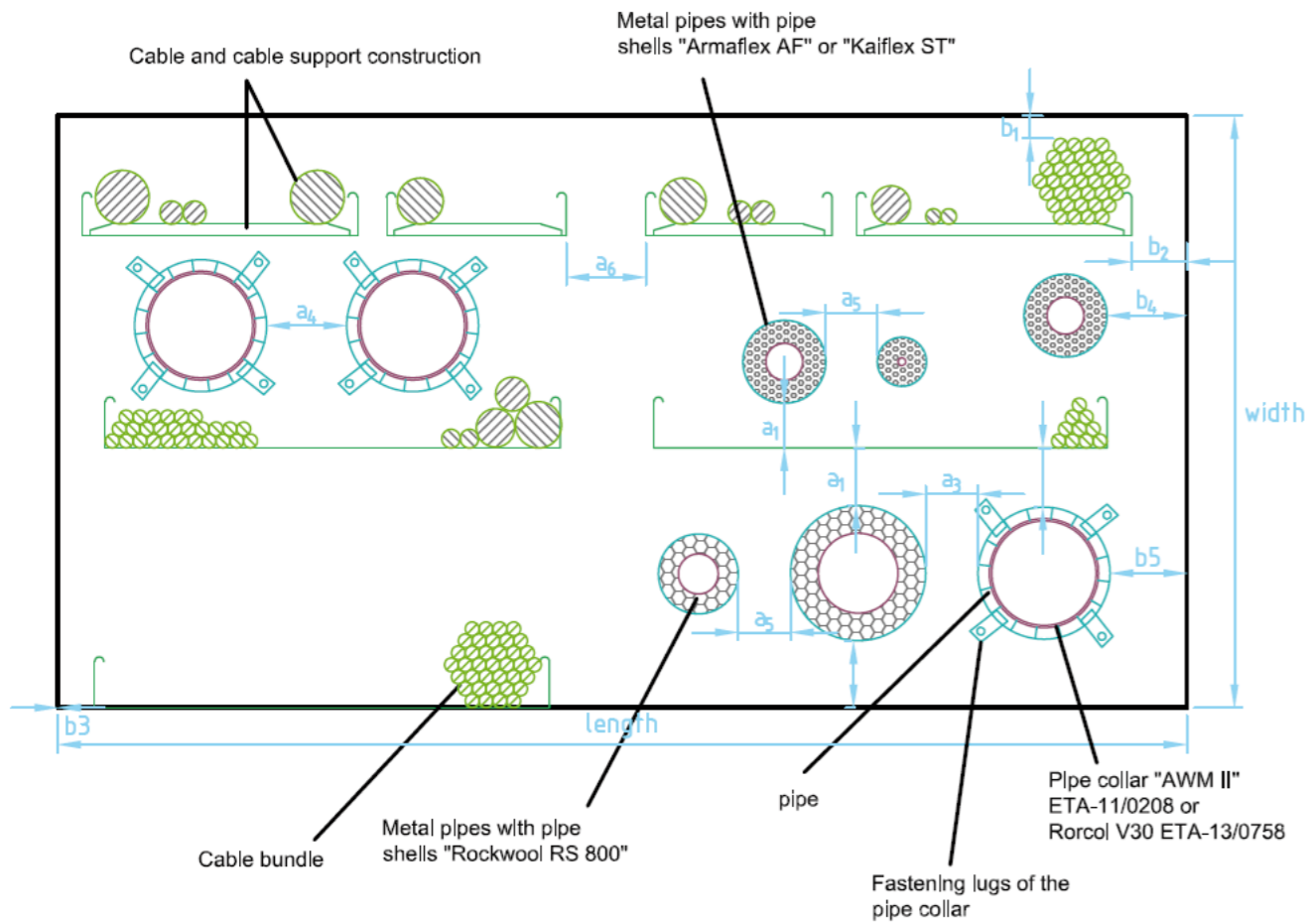
Illustrated classified pipe dimensions

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Copper pipe	Up to 10	1.0-5.0	9x10	EI 60 C/U
	Up to 22	1.0-11	9x22	
	Up to 54	1.5-14.2	19x54	

Illustrated classified pipe dimensions

6. Assembly instructions for HENSOMASTIK® Mixed Penetration Seal EI 30 / EI 60 in solid ceiling

6.0 Overview and measurements in the single-board Mixed Penetration Seal “solid ceiling”



Maximum seal size: 1800 mm x 1000 mm

a1: between cable/cable trays and metal pipes ≥ 20 mm

a2: between cable / cable trays and plastic pipes ≥ 25 mm

a3: between metal pipes and plastic pipes ≥ 25 mm

a4: between plastic pipes ≥ 15 mm

a5: between metal pipes ≥ 25 mm

a6: between cable trays ≥ 20 mm

b1: between cable/cable trays and the upper seal edge: ≥ 25 mm

b2: between cable/cable trays and the side seal edge: ≥ 25 mm

b3: between cable/cable trays and the lower seal edge: ≥ 25 mm

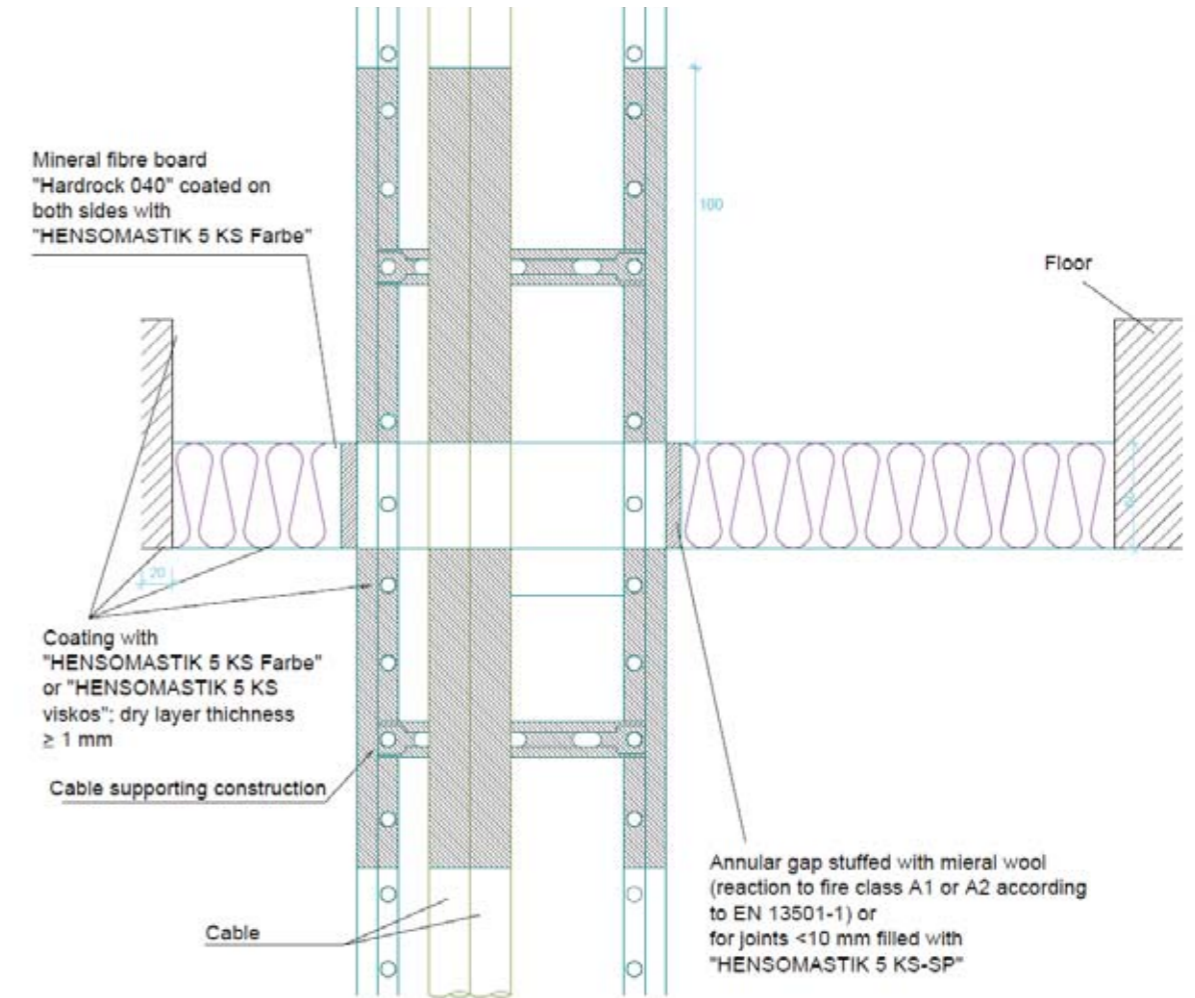
b4: between metal pipes and the side seal edge: ≥ 25 mm

b5: between plastic pipes and the side seal edge: ≥ 25 mm

Distance 1st support pipe service ≤ 620 mm

Distance 1st support cable/cable trays ≤ 220 mm

6.1 Application and fitting with electric cables EI 30 / EI 60

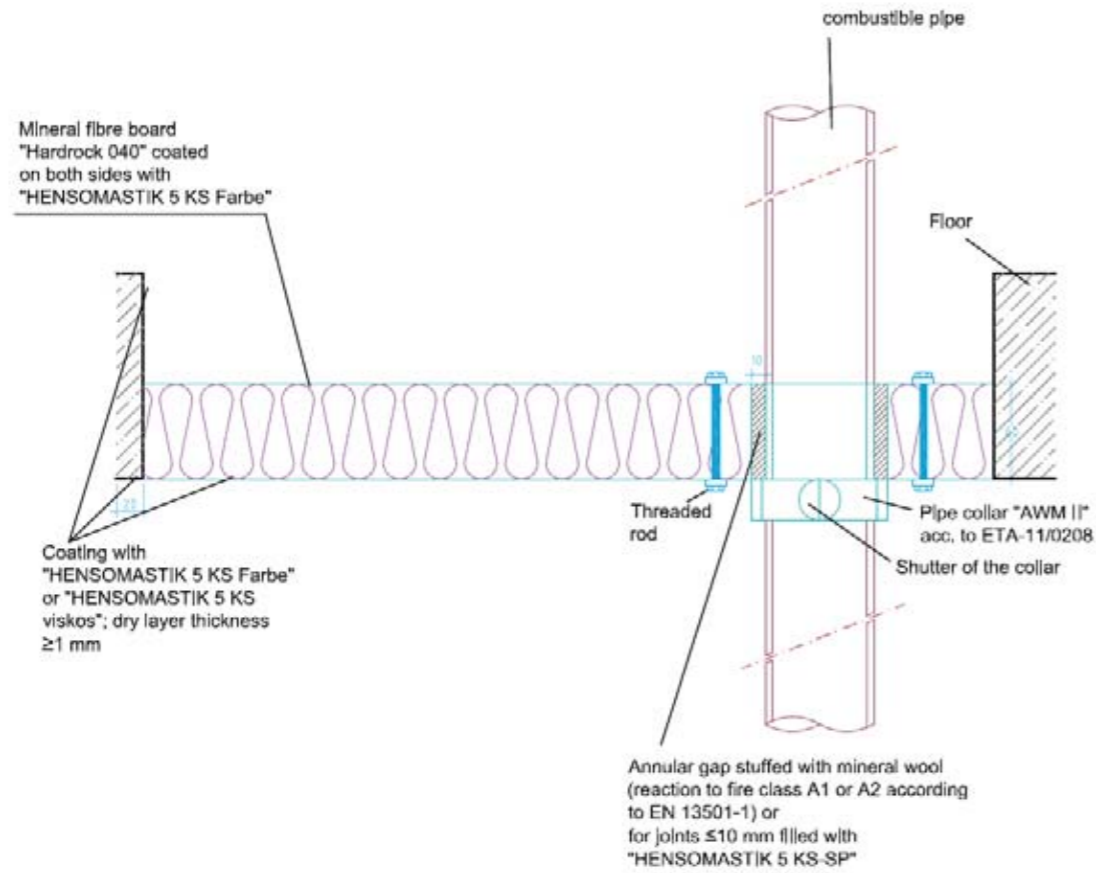


Services	Types
Cables	<ul style="list-style-type: none"> Sheathed electrical cables up to 80 mm diameter Telecom cables up to 21 mm diameter
Cable bundles	<ul style="list-style-type: none"> Bundles of the above up to 100 mm in diameter
Cable Supports	<ul style="list-style-type: none"> Perforated and unperforated steel cable trays and ladders
Plastic pipes with AWM II Light pipe collars	<ul style="list-style-type: none"> PE pipes in accordance with EN 1519-1, EN 12666-1, EN12201-2 Friaphon (by FRIATEC) pipes
Plastic pipes with Air Fire Tech Rorcol V30 pipe collars	<ul style="list-style-type: none"> PVC-U pipes in accordance with EN 1329-1, EN 1453-1, EN 1452-1 PE pipes in accordance with EN 1519-1, EN 12666-1, EN12201-2 PP pipes in accordance with EN 1451-1
Metal pipes with Rockwool RS800 (LI) insulation	<ul style="list-style-type: none"> Copper Mild & stainless steel Cast Iron
Metal pipes with Rockwool RS800 (LS) insulation	<ul style="list-style-type: none"> Copper Mild & stainless steel Cast Iron
Metal pipes with Armaflex AF (LS) insulation	<ul style="list-style-type: none"> Copper Mild & stainless steel Cast Iron
Metal pipes with Kaiflex ST (LS) insulation	<ul style="list-style-type: none"> Copper Mild & stainless steel Cast Iron

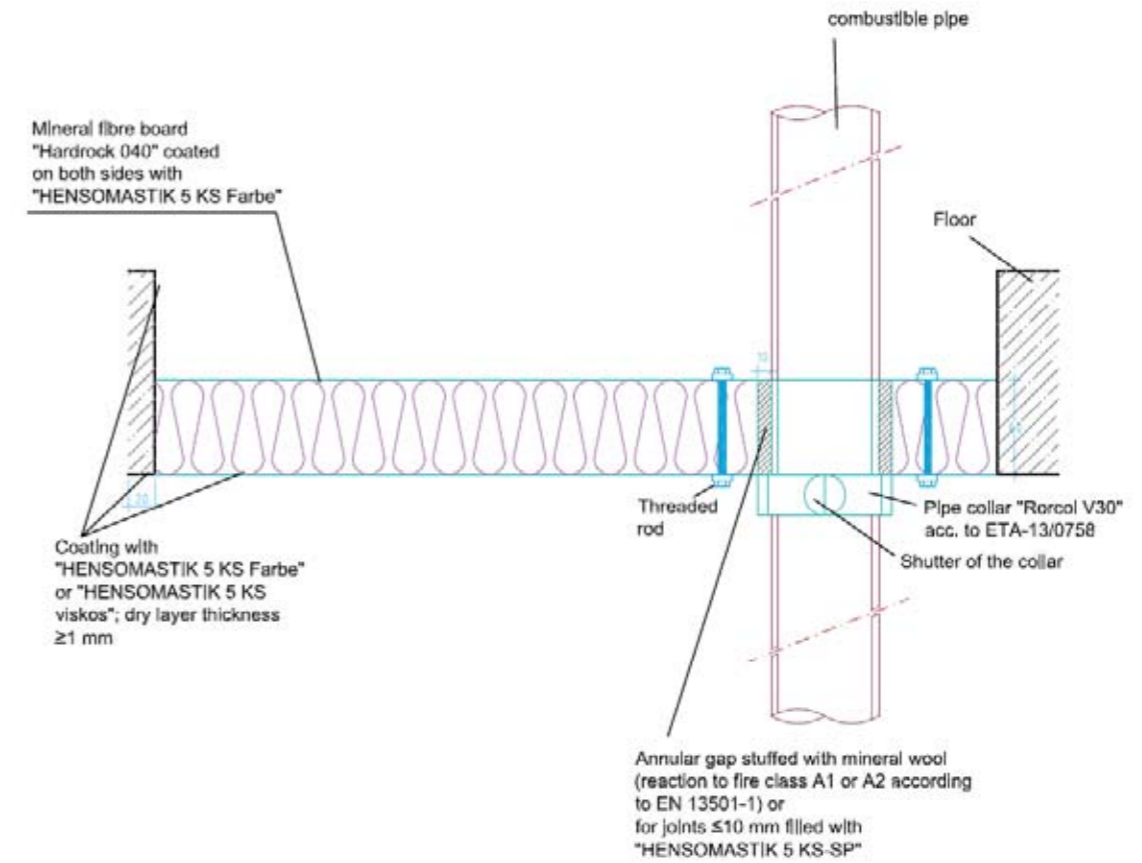
Services	Insulation/Coating	Classification
Sheathed electrical cables up to 21 mm diameter	1 mm DFT HENSOMASTIK 5KS Farbe extending 100 mm from both faces of the seal	EI 60
Telecoms cables up to 21 mm diameter		
Bundles of above cables up to 100 mm diameter		
Cable supports		

6.2 Application and fitting with flammable pipes EI 30 / EI 60

6.2.1 Flammable pipes with pipe collar AWM II EI 30 / EI 60 "U/U"



6.2.2 Flammable pipes with pipe collar Air Fire Tech Rorcol V30 EI 30 / EI 60 "U/U"



Services	Pipe diameter mm	Pipe wall thickness mm	Collar inlay size mm	Classification
PE pipe	40	3	75 x 6	EI 60 U/U*
	50	3		
	56	3		
	75	3		
	90	3.5		
	110	4.3		
	125	4.9	75 x 12	
Friaphon pipe	52	2.8	75 x 6	
	78	4.9		
	110	5.3		
	135	5.6	75 x 12	

* U/C, C/U and C/C classifications are also applicable

Services	Pipe diameter mm	Pipe wall thickness mm	Collar designation and inlay size mm	Classification
PVC-U pipe	50	1.8-9.2	BRM/V30/DN56 31 x 5	EI 60 U/U*
	70	2.0-9.2	BRM/V30/DN63 31 x 7.5	
	90	2.2-9.2	BRM/V30/DN10 31 x 10	
	125	2.5-9.2	BRM/V30/DN125 31 x 12.5	
PE pipe	50	1.8-11.4	BRM/V30/DN56 31 x 5	
	70	2.0-11.4	BRM/V30/DN63 31 x 7.5	
	90	2.5-11.4	BRM/V30/DN10 31 x 10	
	125	3.1-11.4	BRM/V30/DN125 31 x 12.5	
PP pipe	50	1.8-11.4	BRM/V30/DN56 31 x 5	
	70	2.0-11.4	BRM/V30/DN63 31 x 7.5	
	90	2.5-11.4	BRM/V30/DN10 31 x 10	
	125	3.1	BRM/V30/DN125 31 x 12.5	
		11.4	31 x 12.5	EI 30 U/U*

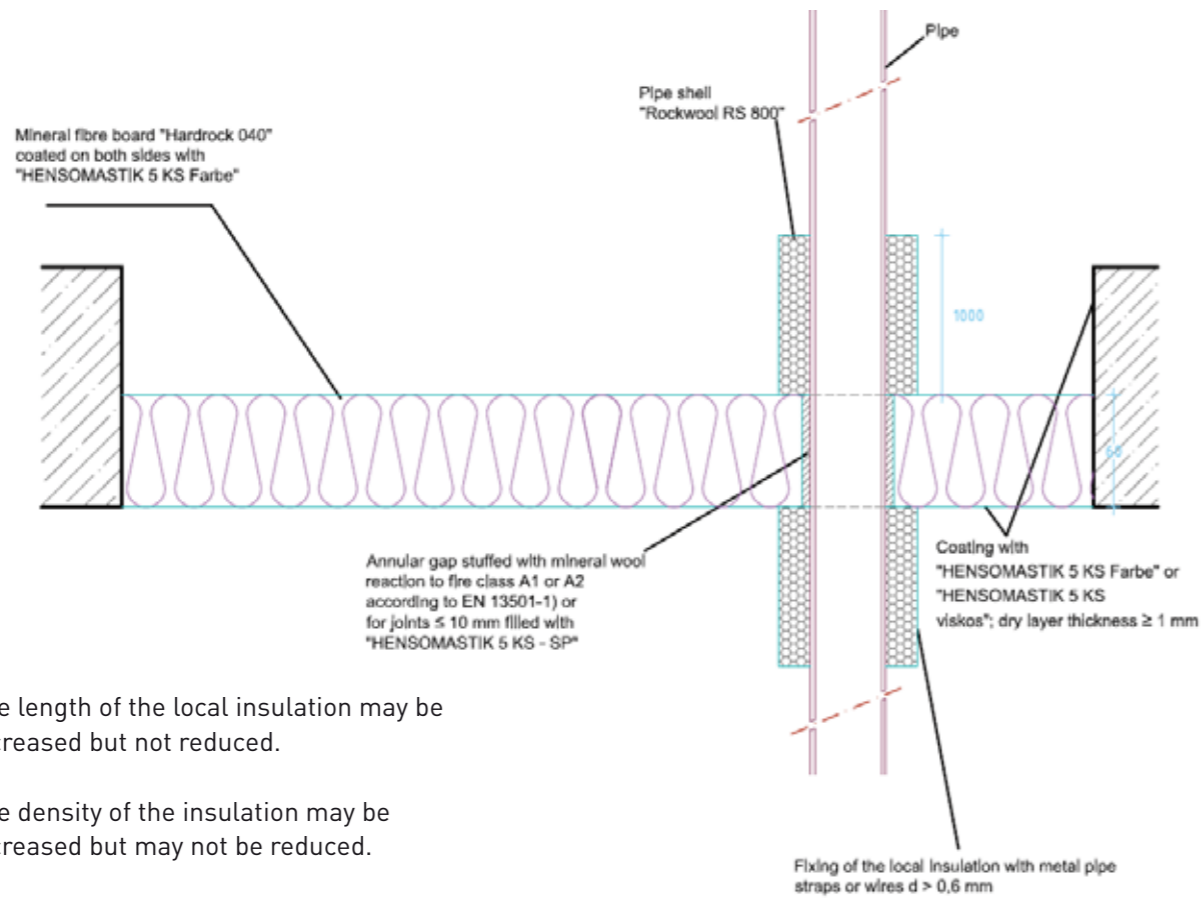
* U/C, C/U and C/C classifications are also applicable

6.3 Application and fitting with **non-flammable pipes EI 30 / EI 60 "U/C"**

6.3.1 **Non-flammable pipes** of steel & copper **with sectional insulation Rockwool RS 800 EI 30 / EI 60 "U/C"**

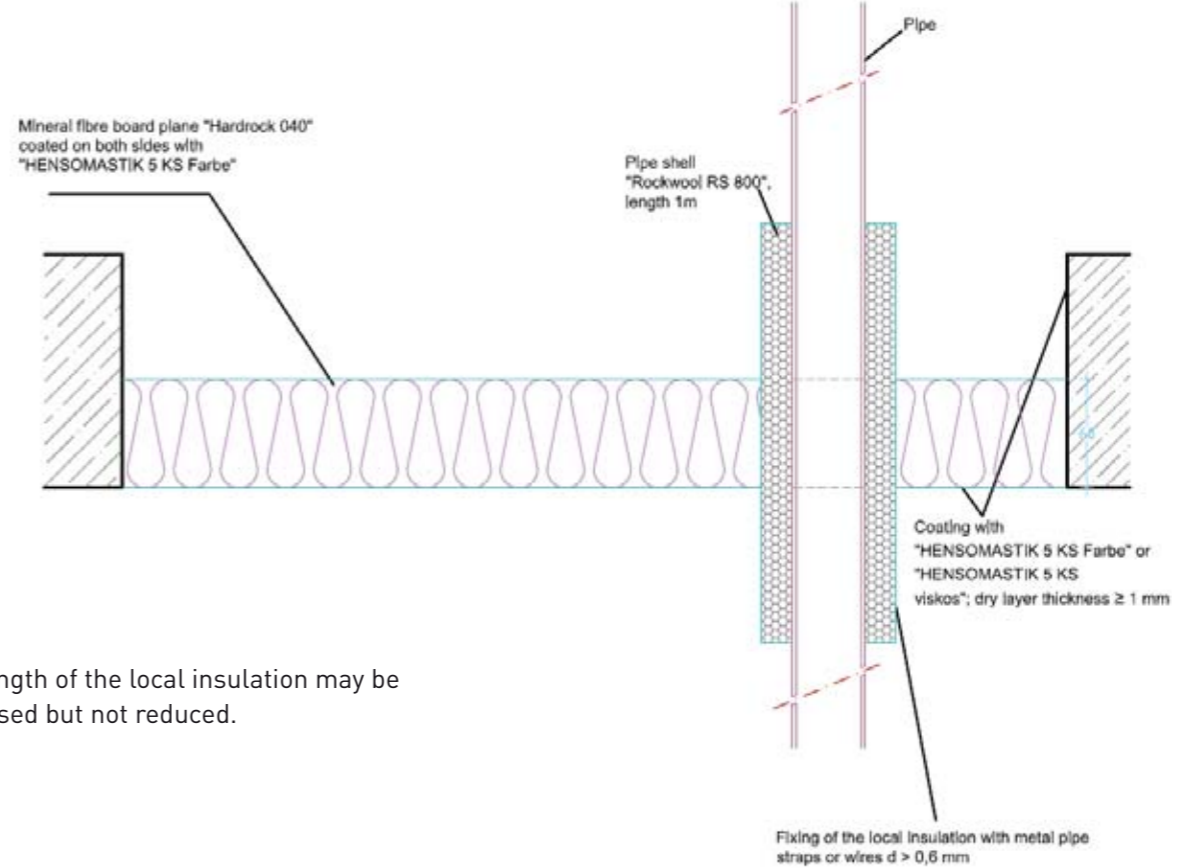
6.3.2 **Non-flammable pipes** of steel & copper

with sectional insulation Rockwool RS 800 EI 30 / EI 60 "C/U"



The length of the local insulation may be increased but not reduced.

The density of the insulation may be increased but may not be reduced.

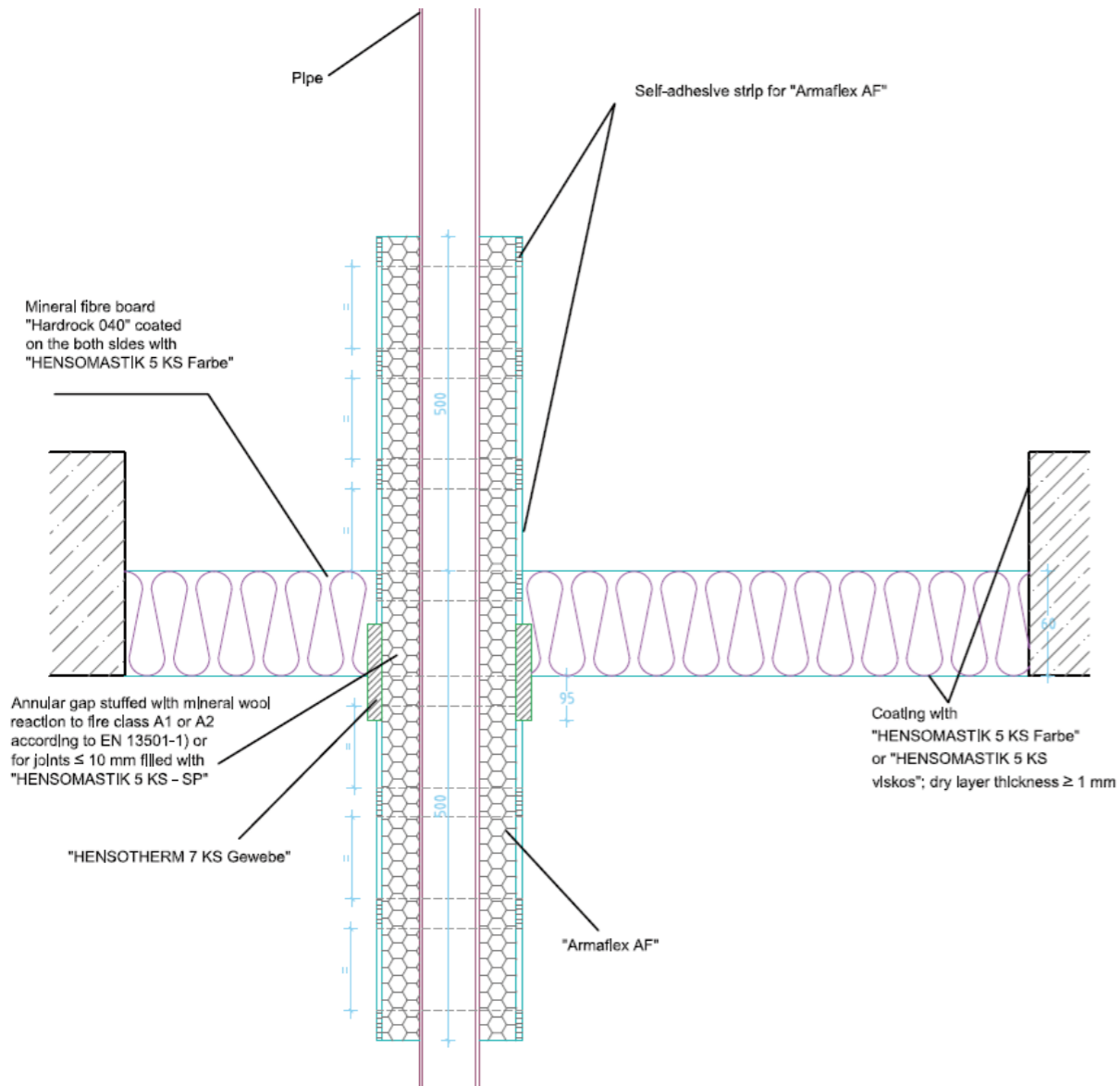


The length of the local insulation may be increased but not reduced.

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 22	1.0-11	20 (min.)	EI 60 U/C
	Up to 48.3	2.6-14.2		
	Up to 139.7	4.0-14.2	30 (min.)	
Illustrated classified pipe dimensions				
Copper pipe	Up to 22	1.0-11	20 (min.)	EI 60 U/C
	Up to 42	1.5-14.2		
	Up to 88.9	2.0-14.2	30 (min.)	
Illustrated classified pipe dimensions				

Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 15	1.0-7.5	20	EI 60 C/U
	Up to 54	1.5-14.2		
	Up to 139.7	4.0-14.2	30 mm	
Illustrated classified pipe dimensions				
Copper pipe	Up to 15	1.0-7.5	20	EI 60 C/U
	Up to 54	1.5-14.2		
	Illustrated classified pipe dimensions			

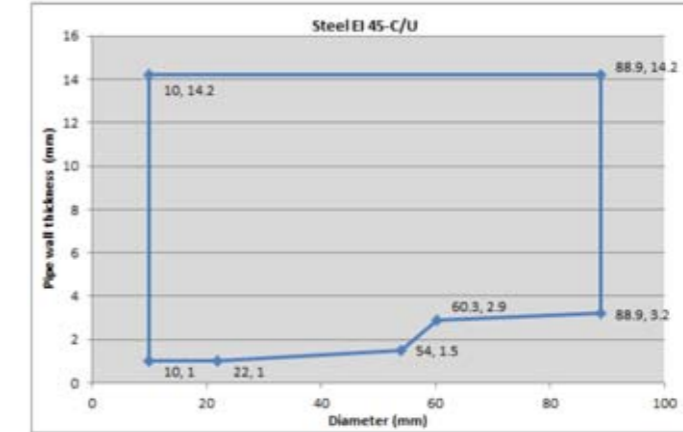
6.3.3 Non-flammable pipes of steel & copper
with insulation Armaflex AF and HENSOTHERM® 7 KS Gewebe EI 30 / EI 60 "C/U"



*Pipe and insulation is required to be wrapped with one layer of HENSOTHERM 7 KS Gewebe 125 mm long, in the middle of the bottom Rockwool slab, extending 95 mm from the penetration seal. The single layer of bandage shall be overlapped by 10 mm.

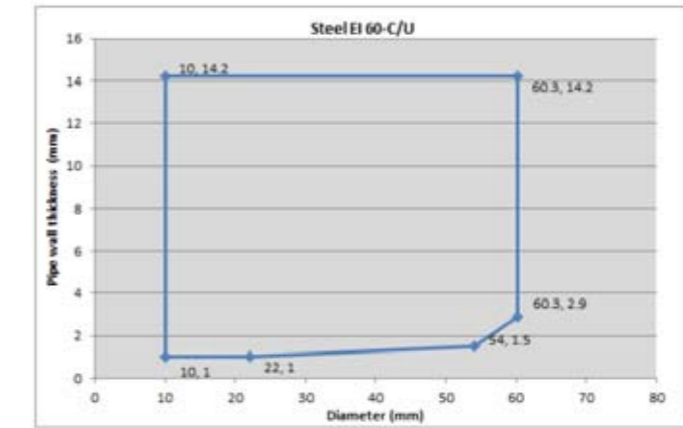
Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Steel or cast iron pipe	Up to 10	1.0-5.0	11	EI 60 C/U
	Up to 22	1.0-11	18	
	Up to 54	1.5-14.2	21	
	Up to 60.3	2.9-14.2	29	EI 45 C/U
	Up to 88.9	3.2-14.2	30.5	

Illustrated classified pipe dimensions



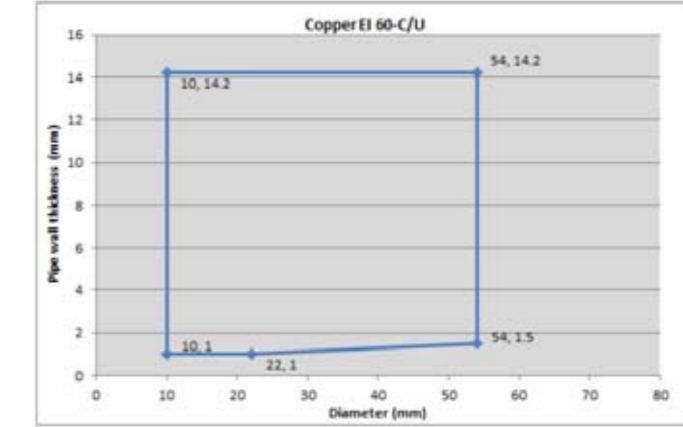
Steel or cast iron pipe

Illustrated classified pipe dimensions



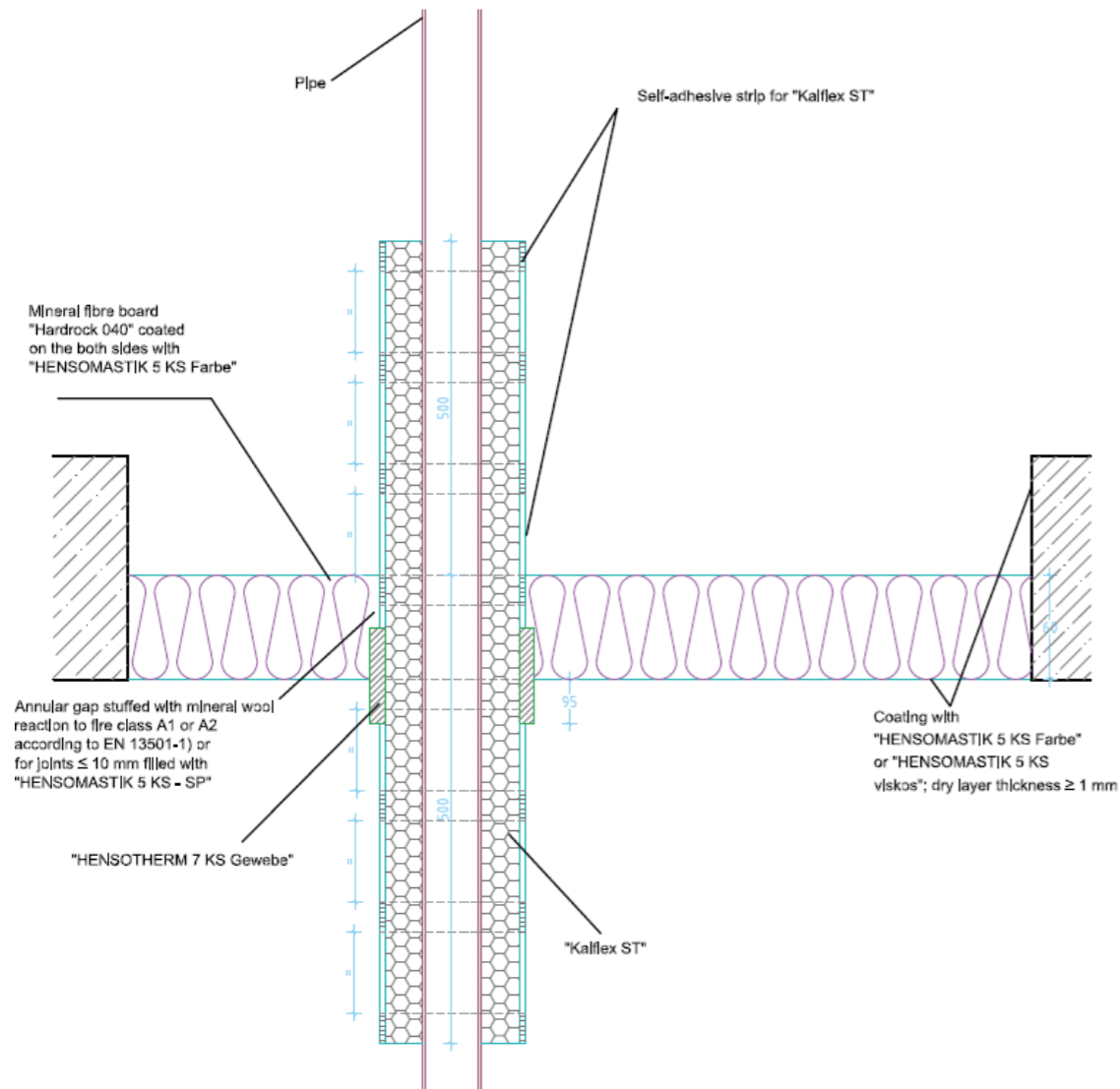
Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Copper pipe	Up to 10	1.0-5.0	11	EI 60 C/U
	Up to 22	1.0-11	18	
	Up to 54	1.5-14.2	21	

Illustrated classified pipe dimensions



Copper pipe

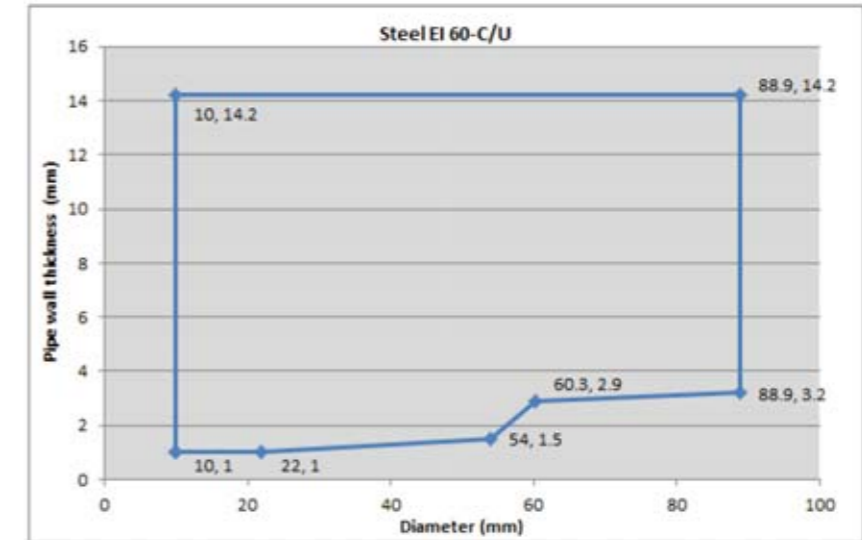
6.3.4 Non-flammable pipes of steel & copper
with insulation Kalflex ST and HENSOTHERM® 7 KS Gewebe EI 30 / EI 60 "C/U"



*Pipe and insulation is required to be wrapped with one layer of HENSOTHERM 7 KS Gewebe 125 mm long, in the middle of the bottom Rockwool slab, extending 95 mm from the penetration seal. The single layer of bandage shall be overlapped by 10 mm.

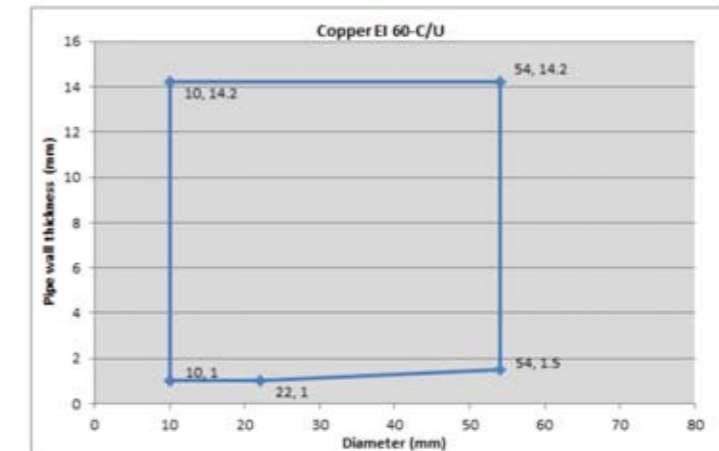
Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness x internal diameter mm	Classification
Steel or cast iron pipe	Up to 10	1.0-5.0	9x10	EI 60 C/U
	Up to 22	1.0-11	9x22	
	Up to 54	1.5-14.2	19x54	
	Up to 60.3	2.9-14.2	25x60	
	Up to 88.9	3.2-14.2	30.5	

Illustrated classified pipe dimensions



Services	Pipe diameter mm	Pipe wall thickness mm	Insulation thickness mm	Classification
Copper pipe	Up to 10	1.0-5.0	9x10	EI 60 C/U
	Up to 22	1.0-11	9x22	
	Up to 54	1.5-14.2	19x54	

Illustrated classified pipe dimensions



FIRE PROTECTION OUR PASSION

RUDOLF HENSEL GMBH

Lack- und Farbenfabrik

Lauenburger Landstraße 11
21039 Börnsen | Germany

Tel. +49 (0)40 /72 10 62-10
Fax +49 (0)40 /72 10 62-52

E-Mail: info@rudolf-hensel.de
Internet: www.rudolf-hensel.de

Technical Support / Sales
Tel. +49 (0)40 /72 10 62-48

