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Authorised and notified
according to Article 29 of the
Regulation (EU)
No 305/2011 of the European
Parliament and of the Council
of 9 March 2011



European Technical Assessment ETA-20/1308 of 2021/01/01

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

HENSOTHERM® RM30 / RM50 for single penetrations

Product family to which the above construction product belongs:

Fire Stopping and Sealing Product:
• Penetration Seals

Manufacturer:

RUDOLF HENSEL GMBH
Lauenburger Landstr.11
Börnsen 21039
Germany

Manufacturing plant:

RUDOLF HENSEL GMBH
Lauenburger Landstr.11
Börnsen 21039
Germany

This European Technical Assessment contains:

34 pages including 1 annex which form an integral part of the document

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

EAD 350454-00-1104 for Fire stopping and fire sealing products - Penetration seals, September 2017

This version replaces:

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SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

- 1) HENSOTHERM® RM30 / RM50 for single penetrations is a pipe collar comprising HENSOTHERM® 7KS Gewebe intumescent inlay/liner and steel casing and is used to form a penetration seal around single pipes, bundles of conduits and supply hoses to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services.
- 2) HENSOTHERM® RM30 / RM50 for single penetrations is a pipe collars are supplied in specific sizes to suit the required penetration diameter.
- 3) The applicant submitted a written declaration that HENSOTHERM® RM30 / RM50 for single penetrations does not contain substances which have to be classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No 1272/2008 and listed in the "Indicative list on dangerous substances" of the EGDS - taking into account the installation conditions of the construction product and the release scenarios resulting from there. An emission report has also been provided.

In addition to the specific clauses relating to dangerous substances contained in this European technical Assessment, there may be other 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.

- 4) The use category of HENSOTHERM® RM30 / RM50 in relation to BWR 3 (Hygiene, health and environment) is IA1, S/W2

2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): EAD 350454-00-1104

Detailed information and data is given in Annex A.

- 1) The intended use of HENSOTHERM® RM30 / RM50 for single penetrations is to reinstate the fire resistance performance of flexible and rigid wall and rigid floor constructions where they are penetrated by single pipes, bundles of conduits and supply hoses.
- 2) The specific elements of construction that the system HENSOTHERM® RM30 / RM50 for single penetrations may be used to provide a penetration seal in, are as follows:
 - a. Rigid walls: The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m³.
 - b. Flexible walls: The wall must have a minimum thickness of 100 mm and comprise steel studs or timber studs* lined on both faces with minimum 2 layers of 12.5 mm thick boards.
 - c. Rigid floors: The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m³.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

- 3) The System HENSOTHERM® RM30 / RM50 for single penetrations may be used to provide a penetration seal with single pipes, bundles of conduits and supply hoses (for details see Annex A).
- 4) Services shall be supported at maximum 250 mm from both faces of the wall or 250 mm from the top of the floor.
- 5) The provisions made in this European Technical Assessment are based on an assumed working life of the HENSOTHERM® RM30 / RM50 of 10 years, provided that the conditions for the packaging/transport/ storage/installation/use/repair are met. 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.
- 6) Type X: Intended for uses in external conditions. Includes lower classes.

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

Product-type: Pipe Collar		Intended use: Penetration Seal	
	Essential characteristic	Product performance	
BWR 2 Safety in case of fire			
	Reaction to fire	Class E	
	Resistance to fire	Annex A	
BWR 3 Hygiene, health and environment			
	Air permeability	No performance assessed	
	Water permeability	No performance assessed	
	Content, emission and/or release of dangerous substances	Use categories: IA1, S/W2 Declaration of manufacturer	
BWR 4 Safety in use			
	Mechanical resistance and stability	No performance assessed	
	Resistance to impact/movement		
	Adhesion		
	Durability	X	
BWR 5 Protection against noise			
	Airborne sound insulation	No performance assessed	
BWR 6 Energy economy and heat retention			
	Thermal properties	No performance assessed	
	Water vapour permeability	No performance assessed	

4 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE

According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, see <https://eur-lex.europa.eu/oj/direct-access.html> of the European Commission¹, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table(s) applies (apply).

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	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 at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2021-01-01 by



Thomas Bruun

Managing Director, ETA-Danmark

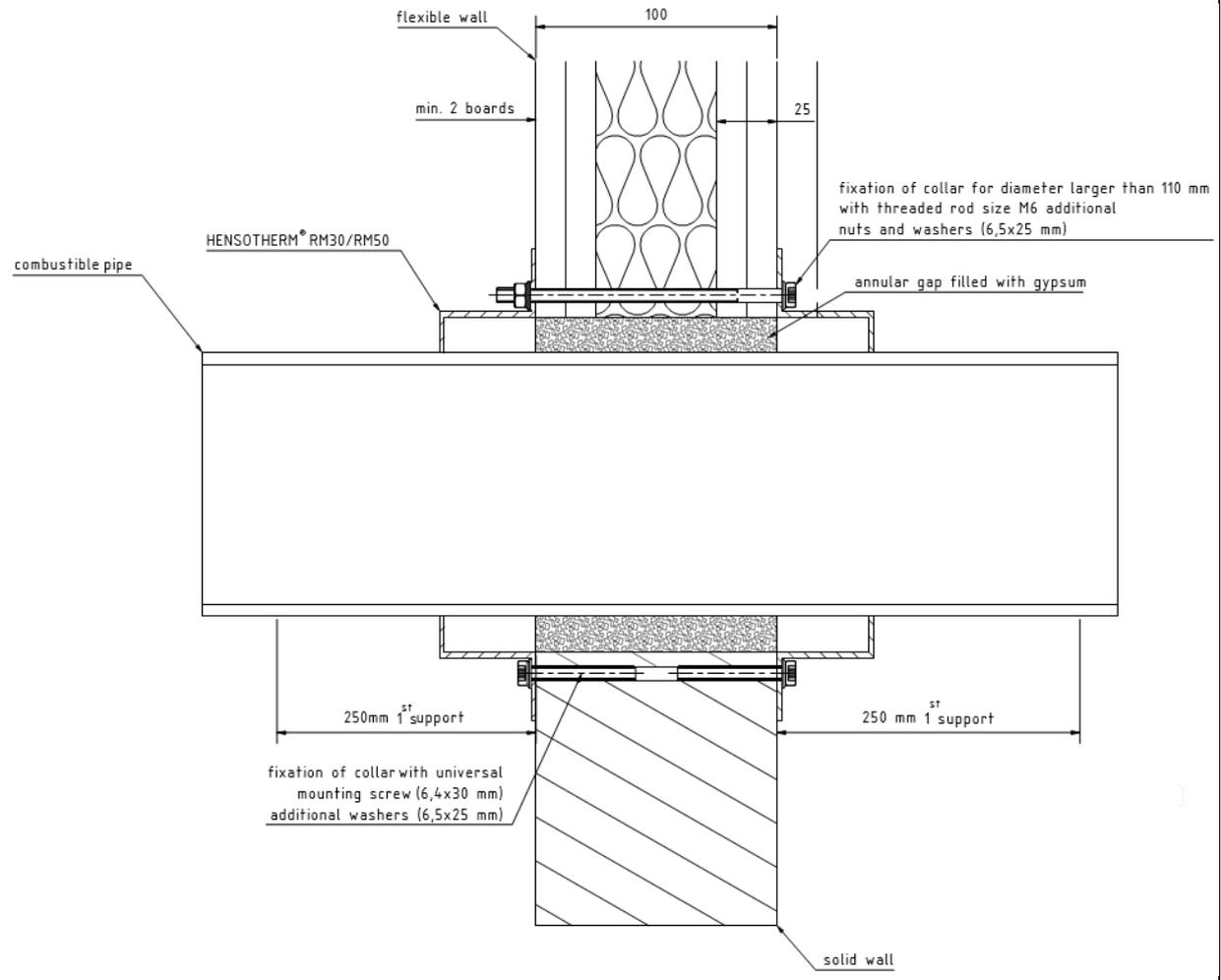
¹ Official Journal of the European Communities L178/52 of 14/7/1999

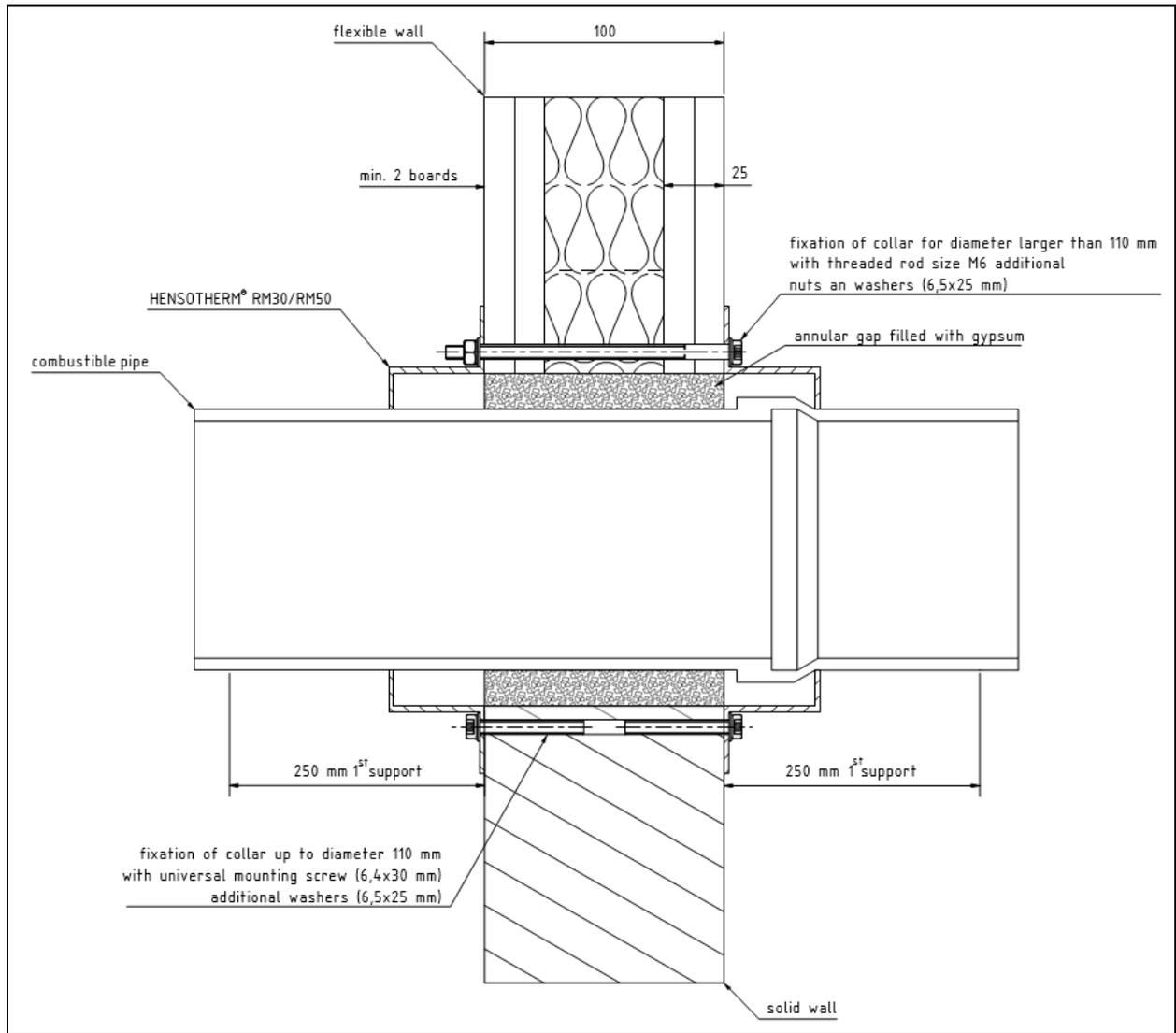
ANNEX A – Resistance to Fire Classification – HENSOTHERM® RM30 / RM50 for single penetrations

A.1 Flexible and rigid/massive wall constructions with wall thickness of minimum 100 mm

Penetration Seal: Plastic pipes (with or without socket) installed into wall with HENSOTHERM® RM30 / RM50 collars, to both faces and annular space filled with gypsum or cement mortar. Maximum annular space 20mm and minimum separation between pipes of 200 mm.

Construction details:





A.1.1 Classification for PE-HD pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
PE-HD	32	3.0	DN32-30	Mounted on both sides		1	EI 180 U/U
PE-HD	40	3.0	DN40-30	Mounted on both sides		1	EI 180 U/U
PE-HD	56	3.0	DN56-30	Mounted on both sides		1	EI 180 U/U
PE-HD	63	4.3	DN63-30	Mounted on both sides		1	EI 90 U/U
PE-HD	75	4.3	DN75-30	Mounted on both sides		1	EI 90 U/U
PE-HD	90	4.3	DN90-30	Mounted on both sides		1	EI 90 U/U
PE-HD	110	4.3	DN110-30	Mounted on both sides		1	EI 90 U/U

A.1.2 Classification for Geberit Silent PP pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent PP	32	1.8	DN32-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent PP	40	1.8	DN40-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent PP	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent PP	75	3.6	DN75-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent PP	90	3.6	DN90-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent PP	110	3.6	DN110-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent PP	125	4.2	DN125-30	Mounted on both sides		2	EI 180 U/U
Geberit Silent PP	160	5.2	DN160-50	Mounted on both sides		2	EI 180 U/U
Geberit Silent PP	125 (socket)	4.2	DN140-50 on socket DN125-30 on smooth pipe	Mounted on both sides		2	EI 120 U/U
Geberit Silent PP	32	1.8	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	40	1.8	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	50	1.8	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	75	3.6	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	90	3.6	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	110	3.6	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Geberit Silent PP	125	4.2	DN140-50	Mounted on both sides	PE 5 mm LS 250 mm	2	EI 180 U/U
Geberit Silent PP	160	5.2	DN180-50	Mounted on both sides	PE 5 mm LS 200 mm	2	EI 120 U/U

A.1.3 Classification for Geberit Silent dB20 pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent dB20	56	3.2	DN56-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent dB20	63	6.0	DN63-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent dB20	75	6.0	DN75-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent dB20	90	6.0	DN90-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent dB20	110	6.0	DN110-30	Mounted on both sides		1	EI 180 U/U

A.1.4 Classification for Geberit Silent Pro pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent Pro	50	3.0	DN56-30	Mounted on both sides		1	EI 180 U/U
Geberit Silent Pro	75	4.5	DN75-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent Pro	90	4.5	DN90-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent Pro	110	4.5	DN110-30	Mounted on both sides		1	EI 120 U/U
Geberit Silent Pro	125	5.0	DN125-30	Mounted on both sides		2	EI 90 U/U
Geberit Silent Pro	50	3.0	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 90 U/U
Geberit Silent Pro	75	4.5	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 60 U/U
Geberit Silent Pro	90	4.5	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 60 U/U
Geberit Silent Pro	110	4.5	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 60 U/U
Geberit Silent Pro	125	5.0	DN140-50	Mounted on both sides	PE 5 mm LS 200 mm	2	EI 120 U/U

A.1.5 Classification for Polokal NG pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal NG	32	2.0	DN32-30	Mounted on both sides		1	EI 180 U/U
Polokal NG	40	2.0	DN40-30	Mounted on both sides		1	EI 180 U/U
Polokal NG	50	2.0	DN56-30	Mounted on both sides		1	EI 180 U/U
Polokal NG	75	3.1	DN75-30	Mounted on both sides		1	EI 120 U/U
Polokal NG	90	3.1	DN90-30	Mounted on both sides		1	EI 120 U/U
Polokal NG	110	3.1	DN110-30	Mounted on both sides		1	EI 120 U/U
Polokal NG	125	3.9	DN125-30	Mounted on both sides		2	EI 180 U/U
Polokal NG	160	4.9	DN160-50	Mounted on both sides		2	EI 180 U/U
Polokal NG	125 (socket)	3.9	DN140-50 on socket DN125-30 on smooth pipe	Mounted on both sides		2	EI 120 U/U
Polokal NG	32	2.0	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal NG	40	2.0	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal NG	50	2.0	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal NG	75	3.4	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 180 U/U
Polokal NG	90	3.4	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 180 U/U
Polokal NG	110	3.4	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 180 U/U
Polokal NG	125	3.9	DN140-50	Mounted on both sides	PE 5 mm LS 250 mm	2	EI 180 U/U
Polokal NG	160	4.9	DN180-50	Mounted on both sides	PE 5 mm LS 250 mm	2	EI 180 U/U

A.1.6 Classification for Polokal 3S pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal 3S	110	4.8	DN110-30	Mounted on both sides		1	EI 120 U/U
Polokal 3S	125	5.3	DN125-30	Mounted on both sides		1	EI 120 U/U

A.1.7 Classification for Polokal XS pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal XS	32	2.0	DN32-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	40	2.0	DN40-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	50	2.0	DN56-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	75	3.4	DN75-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	90	3.4	DN90-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	110	3.4	DN110-30	Mounted on both sides		1	EI 180 U/U
Polokal XS	32	2.0	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal XS	40	2.0	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal XS	50	2.0	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal XS	75	3.4	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal XS	90	3.4	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Polokal XS	110	3.4	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U

A.1.8 Classification for Raupiano Plus pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Raupiano Plus	32	1.8	DN32-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	40	1.8	DN40-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	75	2.8	DN75-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	90	2.8	DN90-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	110	2.8	DN110-30	Mounted on both sides		1	EI 180 U/U
Raupiano Plus	125	3.1	DN125-30	Mounted on both sides		2	EI 180 U/U
Raupiano Plus	125 (socket)	3.1	DN140-50 on socket DN125-30 on smooth pipe	Mounted on both sides		2	EI 90 U/U
Raupiano Plus	32	1.8	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Raupiano Plus	40	1.8	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Raupiano Plus	50	1.8	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Raupiano Plus	75	2.8	DN90-30	Mounted on both sides	PE 5 mm LS 200 mm	1	EI 120 U/U
Raupiano Plus	90	2.8	DN110-30	Mounted on both sides	PE 5 mm LS 200 mm	1	EI 120 U/U
Raupiano Plus	110	2.8	DN125-30	Mounted on both sides	PE 5 mm LS 200 mm	1	EI 120 U/U
Raupiano Plus	125	3.1	DN140-50	Mounted on both sides	PE 5 mm LS 200 mm	2	EI 120 U/U
Raupiano Plus	160	6.2	DN180-50	Mounted on both sides	PE 5 mm LS 250 mm	2	EI 180 U/U

A.1.9 Classification for Pipelife Master 3 pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Pipelife Master 3	32	1.8	DN32-30	Mounted on both sides		1	EI 180 U/U
Pipelife Master 3	40	1.8	DN40-30	Mounted on both sides		1	EI 180 U/U
Pipelife Master 3	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
Pipelife Master 3	75	2.8	DN75-30	Mounted on both sides		1	EI 120 U/U
Pipelife Master 3	90	2.8	DN90-30	Mounted on both sides		1	EI 120 U/U
Pipelife Master 3	110	2.8	DN110-30	Mounted on both sides		1	EI 120 U/U
Pipelife Master 3	125	3.1	DN125-30	Mounted on both sides		2	EI 120 U/U
Pipelife Master 3	125 (socket)	3.1	DN140-50 on socket DN125-30 on smooth pipe	Mounted on both sides		2	EI 90 U/U
Pipelife Master 3	32	1.8	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	40	1.8	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	50	1.8	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	75	2.8	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	90	2.8	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	110	2.8	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Pipelife Master 3	125	3.1	DN140-50	Mounted on both sides	PE 5 mm LS 200 mm	2	EI 120 U/U
Pipelife Master 3	160	4.4	DN180-50	Mounted on both sides	PE 5 mm LS 250 mm	2	EI 120 U/U

A.1.10 Classification for Wavin SiTech+ pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Wavin SiTech+	32	1.8	DN32-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	40	1.8	DN40-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	75	3.4	DN75-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	90	3.4	DN90-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	110	3.4	DN110-30	Mounted on both sides		1	EI 180 U/U
Wavin SiTech+	32	1.8	DN40-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Wavin SiTech+	40	1.8	DN50-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Wavin SiTech+	50	1.8	DN56-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Wavin SiTech+	75	3.4	DN90-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Wavin SiTech+	90	3.4	DN110-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U
Wavin SiTech+	110	3.4	DN125-30	Mounted on both sides	PE 5 mm LS 250 mm	1	EI 120 U/U

A.1.11 Classification for Conel Drainpipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Conel Drain	40	1.8	DN40-30	Mounted on both sides		1	EI 180 U/U
Conel Drain	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
Conel Drain	75	2.7	DN75-30	Mounted on both sides		1	EI 120 U/U
Conel Drain	90	2.7	DN90-30	Mounted on both sides		1	EI 120 U/U
Conel Drain	110	2.7	DN110-30	Mounted on both sides		1	EI 120 U/U

A.1.12 Classification for PVC-U pipes

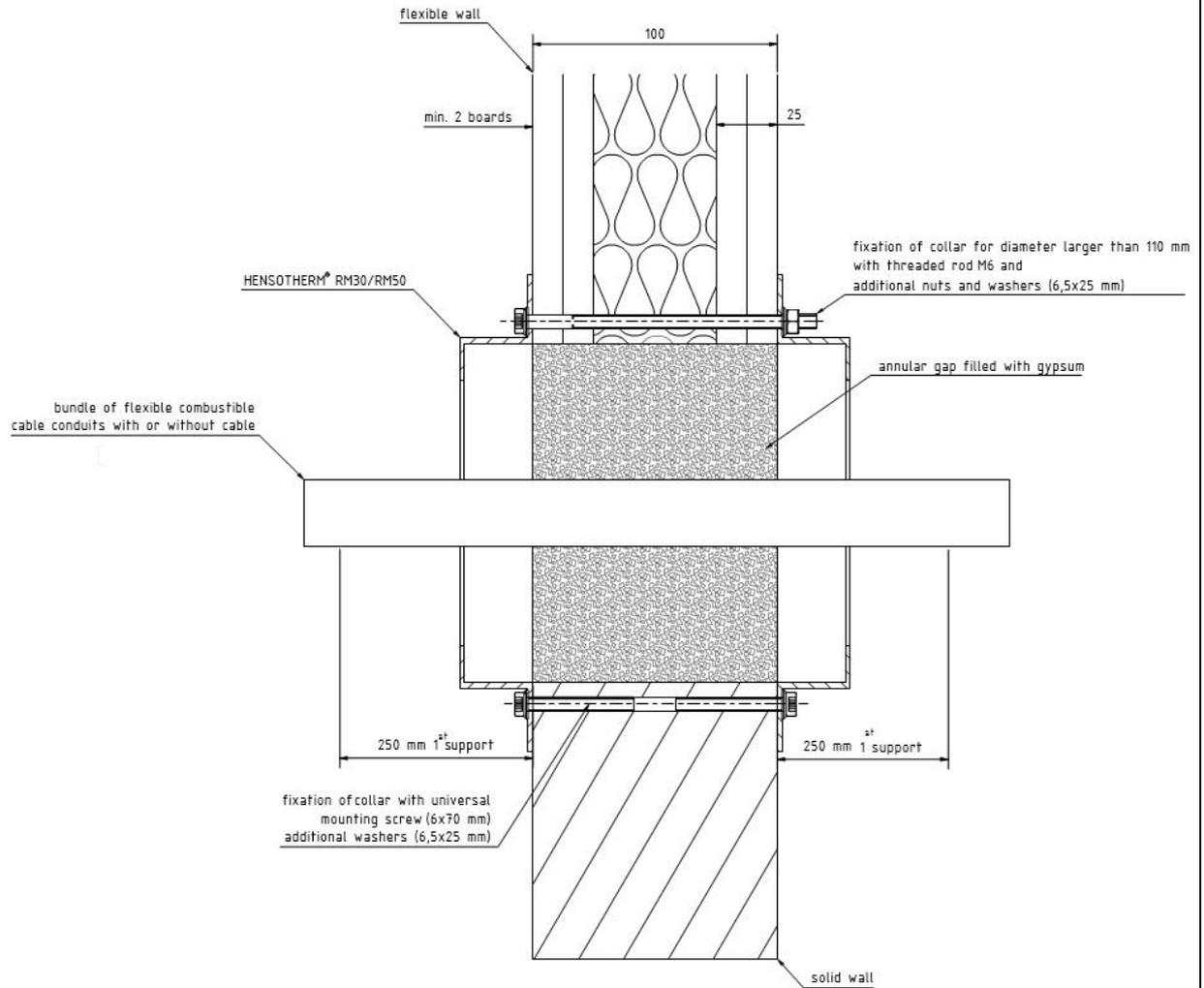
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
PVC-U	50	1.8	DN56-30	Mounted on both sides		1	EI 180 U/U
PVC-U	50	1.8-5.6	DN56-30	Mounted on both sides		1	EI 120 U/U
PVC-U	63	2.2	DN63-30	Mounted on both sides		1	EI 90 U/U
PVC-U	75	2.2	DN75-30	Mounted on both sides		1	EI 90 U/U
PVC-U	90	2.2	DN90-30	Mounted on both sides		1	EI 90 U/U
PVC-U	110	2.2	DN110-30	Mounted on both sides		1	EI 90 U/U
PVC-U	110	2.2-8.1	DN110-30	Mounted on both sides		1	EI 90 U/C
PVC-U	125	2.5	DN125-30	Mounted on both sides		2	EI 120 U/U
PVC-U	125	2.5-9.3	DN125-30	Mounted on both sides		2	EI 90 U/C

- 1 screw anchor WG-Fix Panhead 6.3x30 + washer 6.5x25
2 M6 thread bar + washer 6.5x25 + M6 nut

A.2 Flexible and rigid/massive wall constructions with wall thickness of minimum 100 mm

Penetration Seal: Conduits and cables installed into wall with HENSOTHERM® RM30 / RM50 collars, to both faces and annular space filled with gypsum or cement mortar. Maximum annular space 20mm and minimum separation between pipes of 200 mm.

Construction details:



A.2.1 Classification for Polyolefin conduits

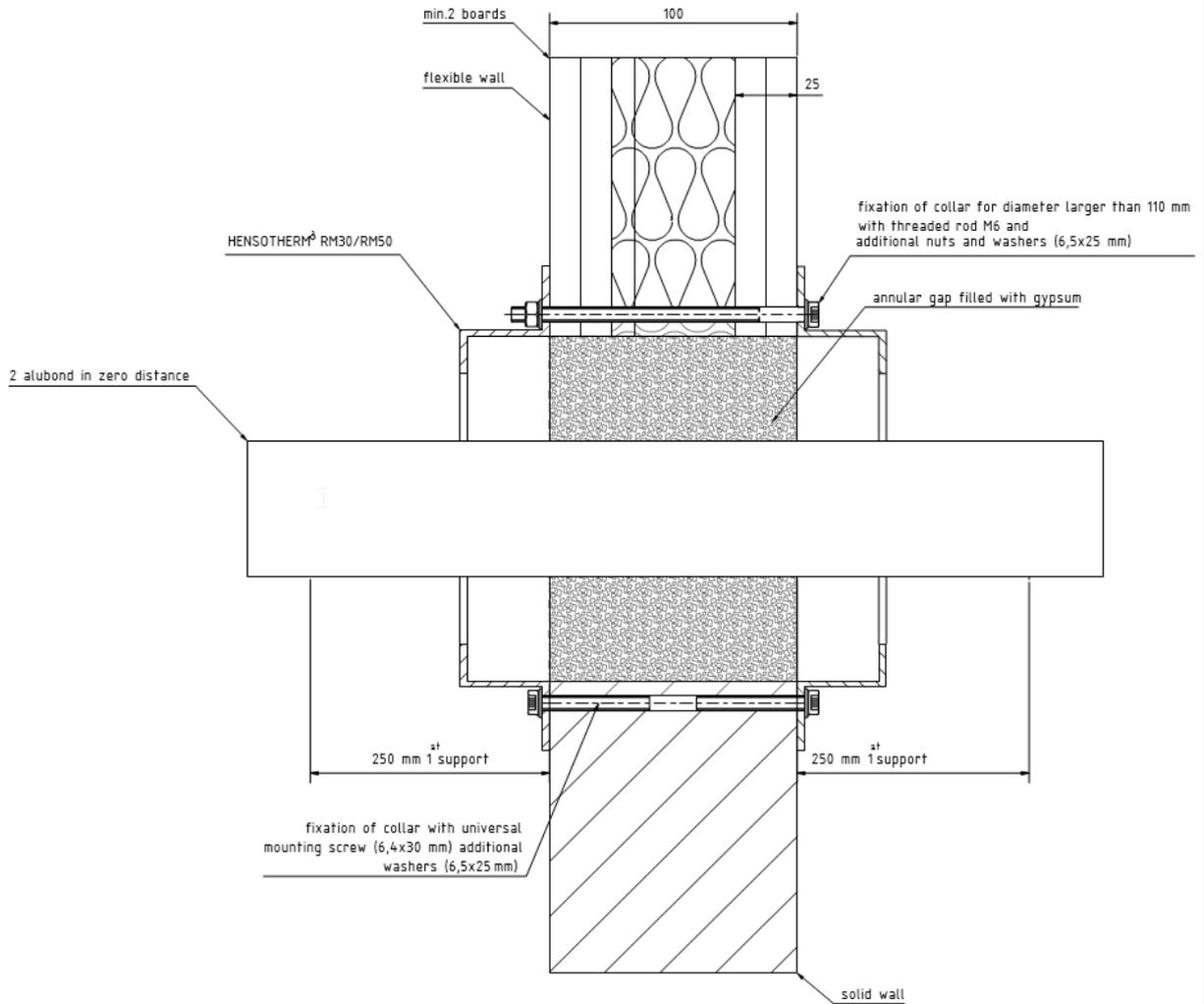
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Bundle of polyolefin conduits with cables (NYM-J 5x16 mm ² and NYM-J 5x1.5 mm ²)	125 (conduit DN16 and DN40)		DN125-50	Mounted on both sides		2	EI 120 U/C
Bundle of polyolefin conduits without cables	125 (conduit DN16 and DN32)		DN125-50	Mounted on both sides		2	EI 120 U/C

- 1 screw anchor WG-Fix Panhead 6.3x30 + washer 6.5x25
- 2 M6 thread bar + washer 6.5x25 + M6 nut

A.3 Flexible and rigid/massive wall constructions with wall thickness of minimum 100 mm

Penetration Seal: Composite pipes installed into wall with HENSOTHERM® RM30 / RM50 collars, to both faces and annular space filled with gypsum or cement mortar. Maximum annular space 20mm and minimum separation between pipes of 0 mm.

Construction details:



A.3.1 Classification for Geberit Mepla pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Mepla (A)	16 (2x)	2.25	DN40-50	Mounted on both sides		1	EI 180 U/C
Geberit Mepla (A)	26 (2x)	3.0	DN56-50	Mounted on both sides		1	EI 120 U/C

A.3.2 Classification for TeceFlex pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
TeceFlex (A)	17 (2x)	2.75	DN40-50	Mounted on both sides		1	EI 180 U/C
TeceFlex (A)	26 (2x)	4.0	DN56-50	Mounted on both sides		1	EI 180 U/C

A.3.3 Classification for KeKelit Kelox pipes

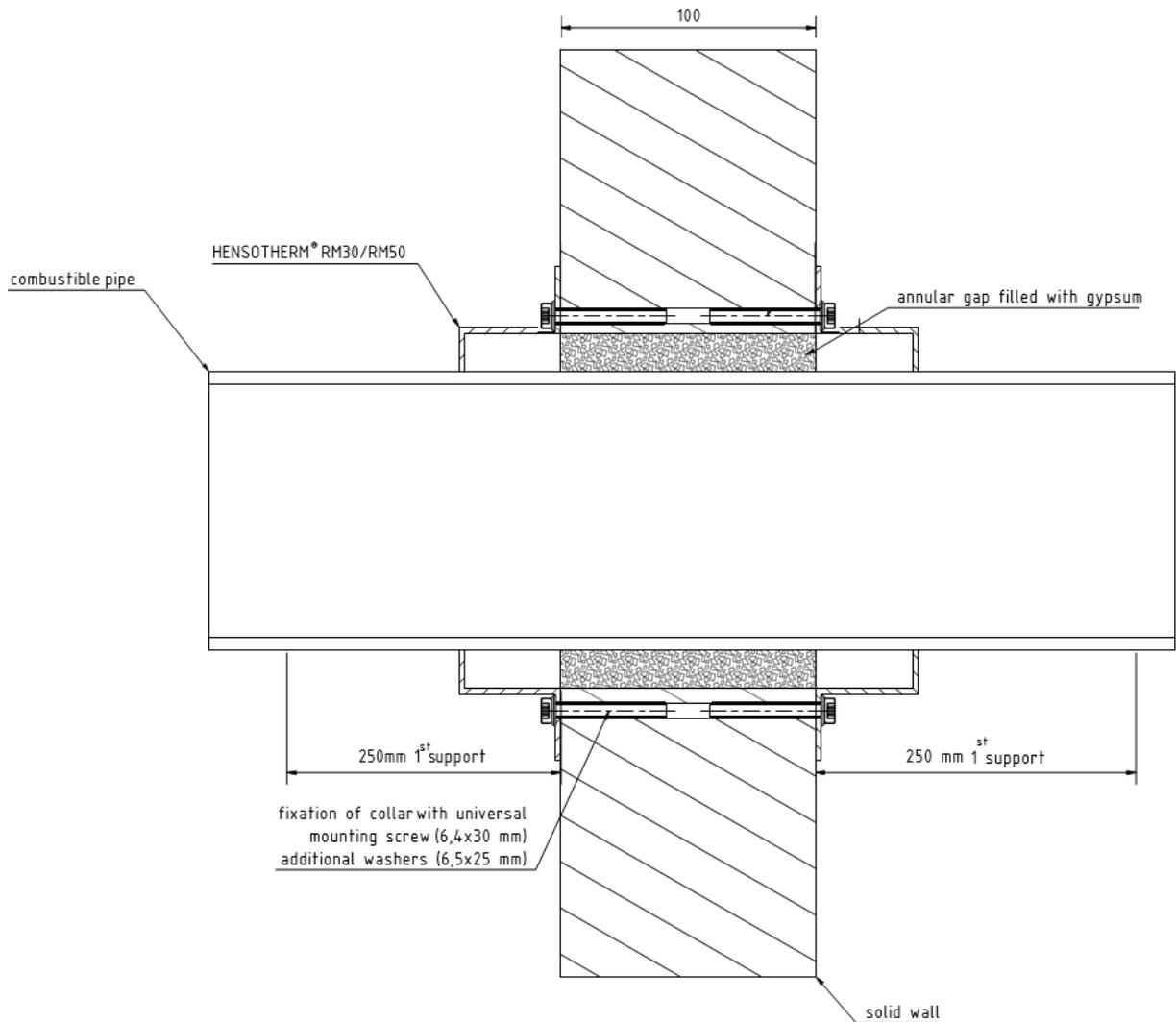
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
KeKelit Kelox (A)	16 (2x)	2.0	DN40-50	Mounted on both sides		1	EI 180 U/C
KeKelit Kelox (A)	25 (2x)	3.0	DN56-50	Mounted on both sides		1	EI 180 U/C

- (A) pipes with zero distance installed in the opening
- 1 screw anchor WG-Fix Panhead 6.3x30 + washer 6.5x25
 - 2 M6 thread bar + washer 6.5x25 + M6 nut

A.4 Rigid/massive wall constructions with wall thickness of minimum 100 mm

Penetration Seal: Plastic pipes installed into wall with HENSOTHERM® RM30 / RM50 collars, to both faces and annular space filled with gypsum or cement mortar. Minimum separation between pipes of 200 mm.

Construction details:



A.4.1 Classification for Polokal NG pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Fixing pipe collar	Classification
Polokal NG	200	6.8	DN200-50	Mounted on both sides	1	EI 240 U/U

A.4.2 Classification for Raupiano Plus pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Fixing pipe collar	Classification
Raupiano Plus	200	6.2	DN200-50	Mounted on both sides	1	EI 240 U/U

A.4.3 Classification for Supply hoses for wooden pellets ETA Heiztechnik

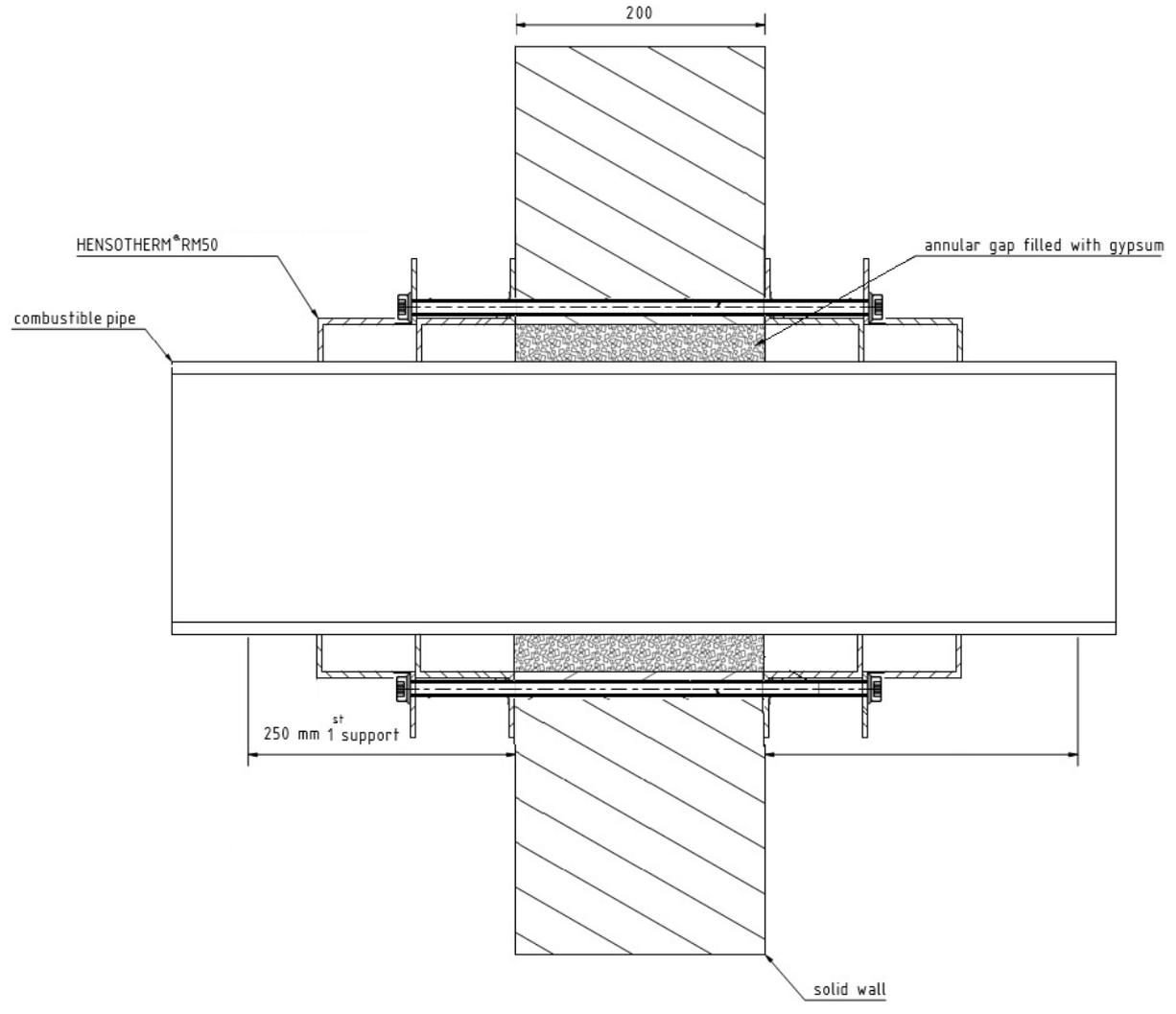
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Fixing pipe collar	Classification
Supply hose for wooden pellets ETA Heiztechnik	63	5.5	DN63-50	Mounted on both sides	1	EI 240 U/U
Supply hose for wooden pellets ETA Heiztechnik	63	4.3	DN63-50	Mounted on both sides	1	EI 240 U/U

1 screw Würth ASSY 3.0 (6.0x70) + washer 6.5x25

A.5 Rigid/massive wall constructions with wall thickness of minimum 200 mm

Penetration Seal: Plastic pipes installed into wall with HENSOTHERM® RM50 collars, to both faces and annular space filled with gypsum or cement mortar. Minimum separation between pipes of 200 mm.

Construction details:



A.5.1 Classification for PE pipes

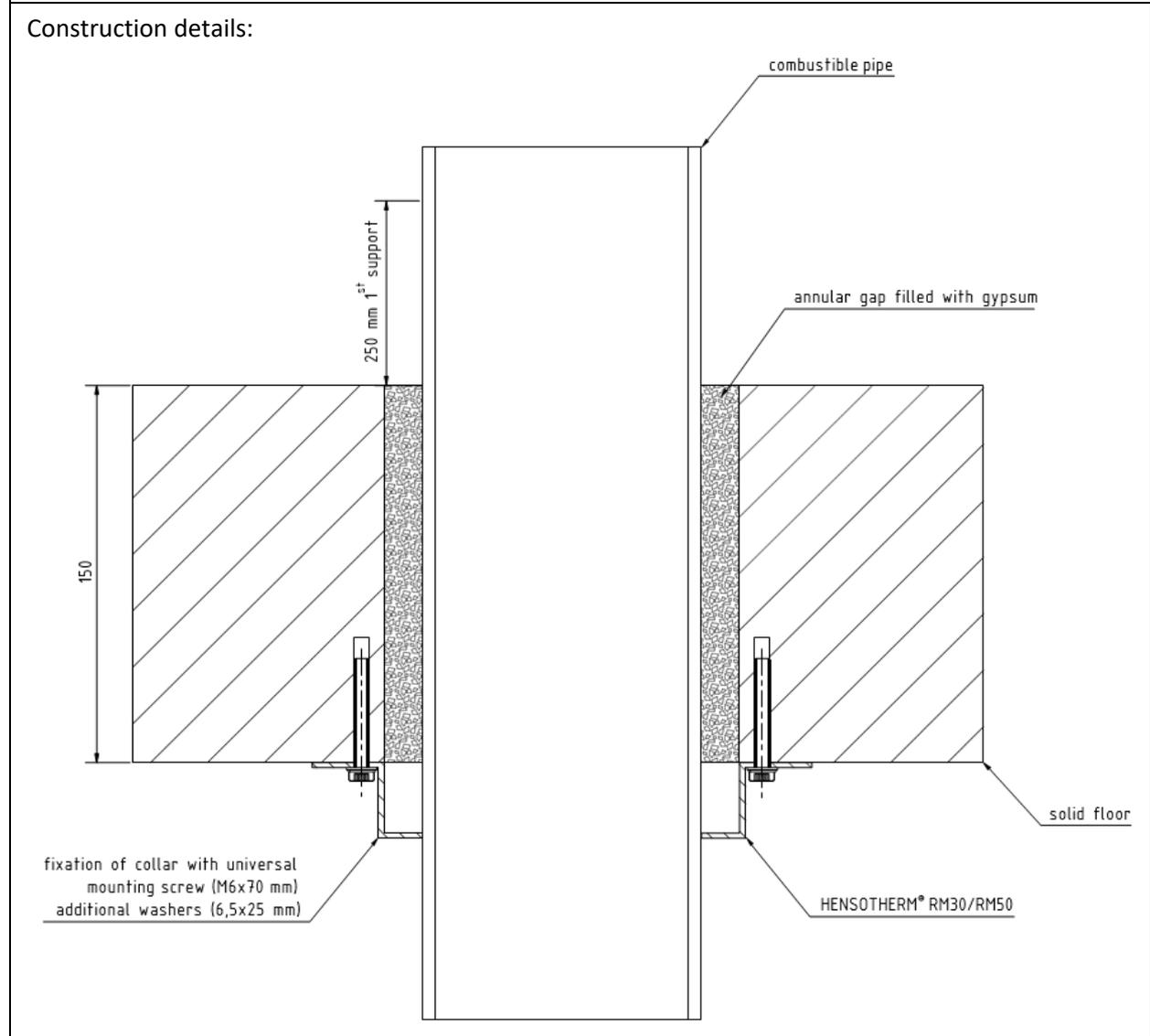
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Fixing pipe collar	Classification
PE 100	560	33.8	DN600-50	Mounted on both sides, x2 stacked	1	EI 120 U/C

1. Threaded M8 rods, nuts and washers (8.5x25mm)

A.6 Rigid/massive floor constructions with floor thickness of minimum 150 mm

Penetration Seal: Plastic and composite pipes installed into floor with HENSOTHERM® RM30 / RM50 collars, to the underside of the floor and annular space filled with gypsum or cement mortar. Maximum annular space 15mm and minimum separation between pipes of 200 mm (except where specified differently in the table)

Construction details:



A.6.1 Classification for PE-HD pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
PE-HD	32	3.0	DN32-30	Fixed at the floor underside		1	EI 120 U/U
PE-HD	40	3.0	DN40-30	Fixed at the floor underside		1	EI 120 U/U
PE-HD	56	3.0	DN56-30	Fixed at the floor underside		1	EI 120 U/U
PE-HD	160	6.2	DN160-50	Fixed at the floor underside		1	EI 180 U/U

A.6.2 Classification for Geberit Silent PP pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent PP	32	1.8	DN32-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	40	1.8	DN40-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	50	1.8	DN56-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	75	2.6	DN75-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	90	3.1	DN90-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	110	3.6	DN110-30	Fixed at the floor underside		1	EI 90 U/U
Geberit Silent PP	125	4.2	DN125-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent PP	160	5.2	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Geberit Silent PP	125 (socket)	4.2	DN140-50 on socket	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent PP	50	1.8	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 120 U/U
Geberit Silent PP	125	4.2	DN140-50	Fixed at the floor underside		1	EI 180 U/U
Geberit Silent PP	160	5.2	DN180-50	Fixed at the floor underside		1	EI 240 U/U

A.6.3 Classification for Geberit Silent dB20 pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent dB20	56	3.2	DN56-30	Fixed at the floor underside		1	EI 60 U/U
Geberit Silent dB20	70	3.9	DN70-30	Fixed at the floor underside		1	EI 60 U/U
Geberit Silent dB20	90	5.0	DN90-30	Fixed at the floor underside		1	EI 60 U/U
Geberit Silent dB20	110	6.0	DN110-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent dB20	160	7.0	DN160-50	Fixed at the floor underside		1	EI 240 U/U

A.6.4 Classification for Geberit Silent Pro pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Silent Pro	50	3.0	DN56-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent Pro	75	3.5	DN75-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent Pro	90	4.0	DN90-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent Pro	110	4.5	DN110-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent Pro	125	5.0	DN125-30	Fixed at the floor underside		1	EI 120 U/U
Geberit Silent Pro	50	3.0	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 30 U/U
Geberit Silent Pro	125	5.0	DN140-50	Fixed at the floor underside		1	EI 180 U/U

A.6.5 Classification for Polokal NG pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal NG	32	2.0	DN32-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	40	2.0	DN40-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	50	2.0	DN56-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	75	2.6	DN75-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	90	3.0	DN90-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	110	3.4	DN110-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	125	3.9	DN125-30	Fixed at the floor underside		1	EI 90 U/U
Polokal NG	160	4.9	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Polokal NG	200	6.8	DN200-50	Fixed at the floor underside		1	EI 240 U/U
Polokal NG	50	2.0	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 60 U/U
Polokal NG	125	3.9	DN140-50	Fixed at the floor underside		1	EI 180 U/U
Polokal NG	160	4.9	DN180-50	Fixed at the floor underside		1	EI 240 U/U

A.6.6 Classification for Polokal 3S pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal 3S	110	4.8	DN110-30	Fixed at the floor underside		1	EI 90 U/U
Polokal 3S	125	5.3	DN125-30	Fixed at the floor underside		1	EI 120 U/U
Polokal 3S	160	7.5	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Polokal 3S	125 (socket)	5.3	DN140-50 on socket	Fixed at the floor underside		1	EI 120 U/U

A.6.7 Classification for Polokal XS pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Polokal XS	32	2.0	DN32-30	Fixed at the floor underside		1	EI 90 U/U
Polokal XS	40	2.0	DN40-30	Fixed at the floor underside		1	EI 90 U/U
Polokal XS	50	2.0	DN56-30	Fixed at the floor underside		1	EI 90 U/U
Polokal XS	50	2.0	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 120 U/U

A.6.8 Classification for Raupiano Plus pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Raupiano Plus	32	1.8	DN32-30	Fixed at the floor underside		1	EI 90 U/U
Raupiano Plus	40	1.8	DN40-30	Fixed at the floor underside		1	EI 90 U/U
Raupiano Plus	50	1.8	DN56-30	Fixed at the floor underside		1	EI 90 U/U
Raupiano Plus	75	2.2	DN75-30	Fixed at the floor underside		1	EI 90 U/U
Raupiano Plus	90	2.4	DN90-30	Fixed at the floor underside		1	EI 90 U/U
Raupiano Plus	110	2.8	DN110-30	Fixed at the floor underside		1	EI 180 U/U
Raupiano Plus	125	3.1	DN125-30	Fixed at the floor underside		1	EI 180 U/U
Raupiano Plus	160	3.9	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Raupiano Plus	125 (socket)	3.1	DN140-50 on socket	Fixed at the floor underside		1	EI 120 U/U
Raupiano Plus	50	1.8	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 90 U/U
Raupiano Plus	125	3.1	DN140-50	Fixed at the floor underside		1	EI 180 U/U
Raupiano Plus	160	3.9	DN180-50	Fixed at the floor underside		1	EI 240 U/U

A.6.9 Classification for Pipelife Master 3 pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Postion pipe collar	Sound insulation	Fixing pipe collar	Classification
Pipelife Master 3	32	1.8	DN32-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	40	1.8	DN40-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	50	1.8	DN56-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	75	2.2	DN75-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	110	2.8	DN110-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	125	3.1	DN125-30	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	160	6.2	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Pipelife Master 3	125 (socket)	3.1	DN140-50 on socket	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	50	1.8	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 120 U/U
Pipelife Master 3	125	3.1	DN140-50	Fixed at the floor underside		1	EI 120 U/U
Pipelife Master 3	160	4.4	DN180-50	Fixed at the floor underside		1	EI 240 U/U

A.6.10 Classification for Wavin SiTech+ pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Wavin SiTech+	32	1.8	DN32-30	Fixed at the floor underside		1	EI 120 U/U
Wavin SiTech+	40	1.8	DN40-30	Fixed at the floor underside		1	EI 120 U/U
Wavin SiTech+	50	1.8	DN56-30	Fixed at the floor underside		1	EI 120 U/U
Wavin SiTech+	75	2.5	DN75-30	Fixed at the floor underside		1	EI 120 U/U
Wavin SiTech+	110	3.4	DN110-30	Fixed at the floor underside		1	EI 120 U/U
Wavin SiTech+	160	4.9	DN160-50	Fixed at the floor underside		1	EI 240 U/U
Wavin SiTech+	50	1.8	DN56-30	Fixed at the floor underside	PE 4-5 mm, LS 220 mm, end 1 cm above topside of floor	1	EI 120 U/U
Wavin SiTech+	160	4.9	DN180-50	Fixed at the floor underside		1	EI 240 U/U

A.6.11 Classification for Conel Drainpipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Conel Drain	40	1.8	DN40-30	Fixed at the floor underside		1	EI 120 U/U
Conel Drain	50	1.8	DN56-30	Fixed at the floor underside		1	EI 120 U/U
Conel Drain	75	2.7	DN75-30	Fixed at the floor underside		1	EI 120 U/U
Conel Drain	90	2.7	DN90-30	Fixed at the floor underside		1	EI 120 U/U
Conel Drain	110	2.7	DN110-30	Fixed at the floor underside		1	EI 120 U/U

A.6.12 Classification for PVC-U pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
PVC-U	50	1.8	DN56-30	Fixed at the floor underside		1	EI 120 U/U
PVC-U	50	1.8-5.6	DN56-30	Fixed at the floor underside		1	EI 90 U/U
PVC-U	75	1.8-2.2	DN75-30	Fixed at the floor underside		1	EI 120 U/U
PVC-U	90	1.8-2.2	DN90-30	Fixed at the floor underside		1	EI 120 U/U
PVC-U	110	2.2	DN110-30	Fixed at the floor underside		1	EI 120 U/U
PVC-U	110	2.2-8.1	DN110-30	Fixed at the floor underside		1	EI 120 U/C
PVC-U	125	2.5	DN125-30	Fixed at the floor underside		1	EI 120 U/U
PVC-U	125	2.5-9.3	DN125-30	Fixed at the floor underside		1	EI 120 U/C

A.6.13 Classification for Geberit Mepla pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Geberit Mepla (A)	16 (2x)	2.25	DN40-50	Fixed at the floor underside		1	EI 120 U/C
Geberit Mepla (A)	26 (2x)	3.0	DN56-50	Fixed at the floor underside		1	EI 120 U/C

A.6.14 Classification for TeceFlex pipes

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
TeceFlex (A)	17 (2x)	2.75	DN40-50	Fixed at the floor underside		1	EI 120 U/C
TeceFlex (A)	26 (2x)	4.0	DN56-50	Fixed at the floor underside		1	EI 120 U/C

A.6.15 Classification for KeKelit Kelox pipes

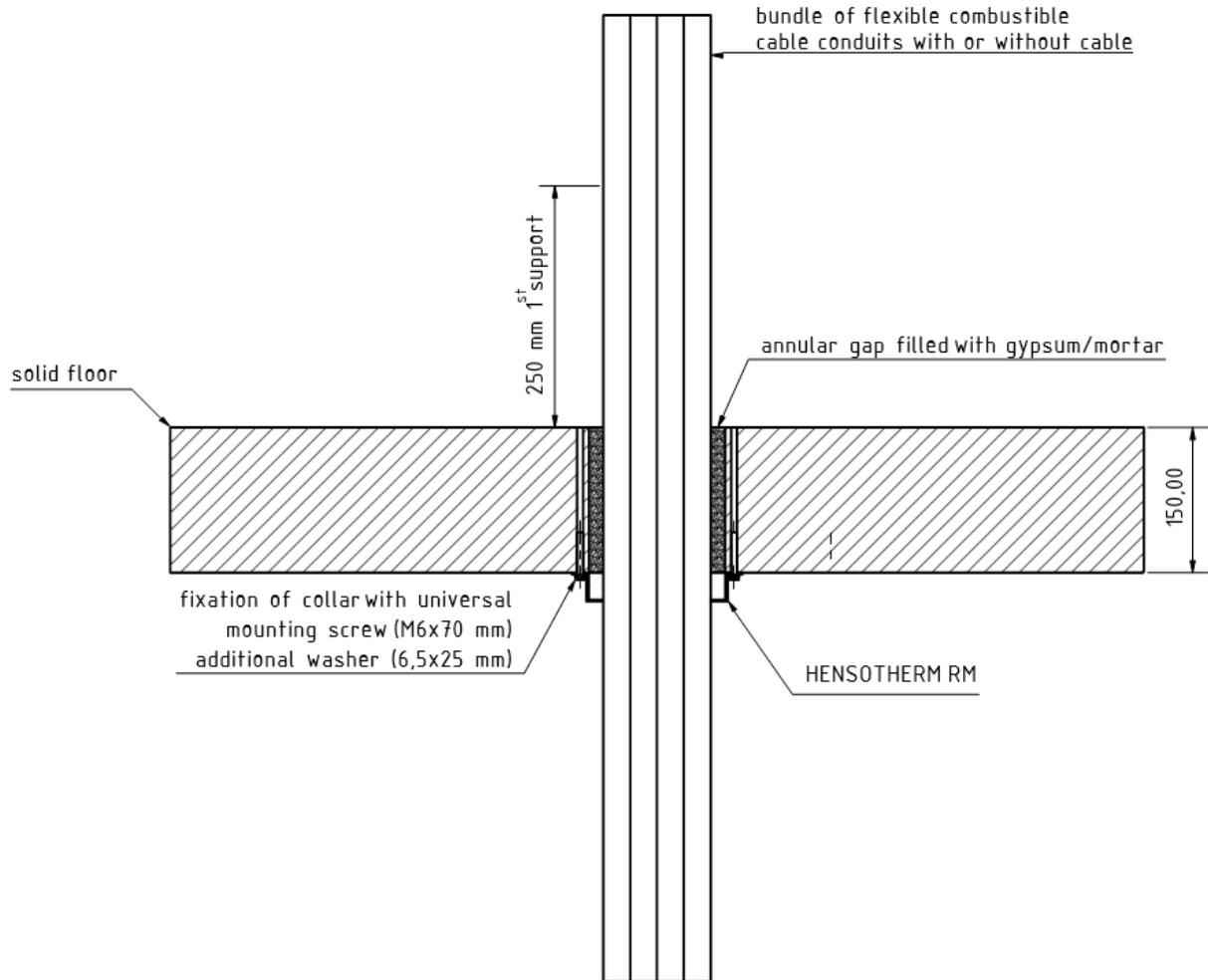
Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
KeKelit Kelox (A)	16 (2x)	2.0	DN40-50	Fixed at the floor underside		1	EI 120 U/C
KeKelit Kelox (A)	25 (2x)	3.0	DN56-50	Fixed at the floor underside		1	EI 120 U/C

- (A) pipes with zero distance installed in the opening
 1 screw Würth ASSY 3.0 (6.0x70) + washer 6.5x25

A.7 Concrete floor constructions with floor thickness of minimum 150 mm

Penetration Seal: Conduits and cables installed into floor with HENSOTHERM® RM30 / RM50 collars, to the underside of the floor and annular space filled with gypsum or cement mortar. Maximum annular space 15mm and minimum separation between pipes of 200 mm.

Construction details:



A.7.1 Classification for Polyolefin conduits

Pipes	Pipe diameter mm	Pipe wall thickness mm	Dimension pipe collar	Position pipe collar	Sound insulation	Fixing pipe collar	Classification
Bundle of polyolefin conduits with cables (NYM-J 5x16 mm ² and NYM-J 5x1.5 mm ²)	125 conduit with DN16 and DN32		DN125-50	Fixed at the floor underside		1	EI 120 U/C
Bundle of polyolefin conduits without cables	125 conduit with DN16 and DN32		DN125-50	Fixed at the floor underside		1	EI 90 U/C

1 screw Würth ASSY 3.0 (6.0x70) + washer 6.5x25