GOIDINGER
BAU+LEICHTBETON GESELLSCHAFT MBH

Installation Instructions and Declaration of Performance

Mixed penetration seal TIROTECH®

according to the European
Technical Assessment ETA-17/0586

TIROTECH®
fire protective mortar

for sealing openings in
walls and floors/ceilings

RORCOL pipe collars

for plastic pipes, multi-layer composite
pipes, metal pipes and cables

Pipe section

for metal pipes

Important:
Please read these Installation Instructions and Declaration of Performance carefully and keep them for future reference.
The installation must be carried out exclusively according to these Installation Instructions and Declaration of Performance. Deviations during installation may result in a considerable reduction in the fire resistance time.
Typographical and printing errors as well as technical changes cannot be ruled out.

For penetration elements and classifications not mentioned in these installation instructions, please contact GOIDINGER Bau- und Leichtbeton GmbH.

Please note the currently valid General Terms and Conditions at www.goidinger.com.

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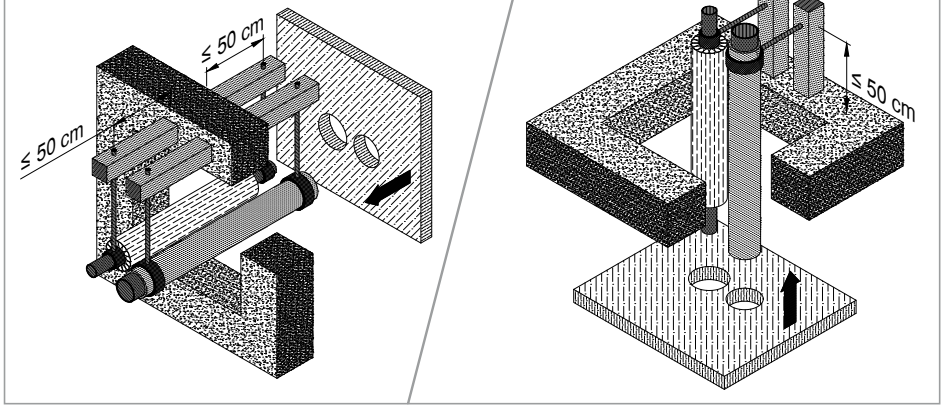
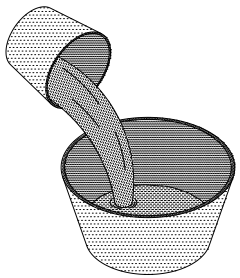
1 Wall / Ceiling



Mount non-flammable fixing max. 50 cm on both sides of the wall or above the ceiling.
Install formwork (e.g. EPS insulation board).

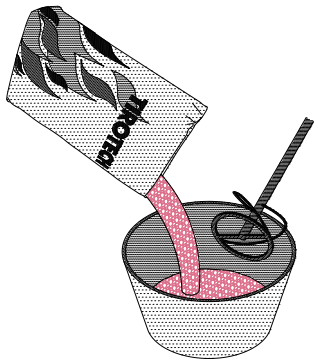
When installing in cross-laminated timber constructions: Attach reinforcement as per page 20.

2



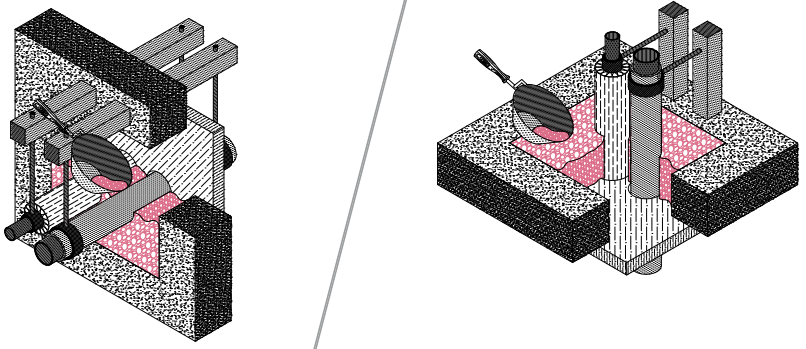
Prepare mortar trough (min. 50 litres).
Fill with clean water, approx. 5 litres / bag.

3



Add the entire contents of the bag of TIROTECH® fire protective mortar and mix with whisk (min. Ø 12 cm), approx. 1 minute.

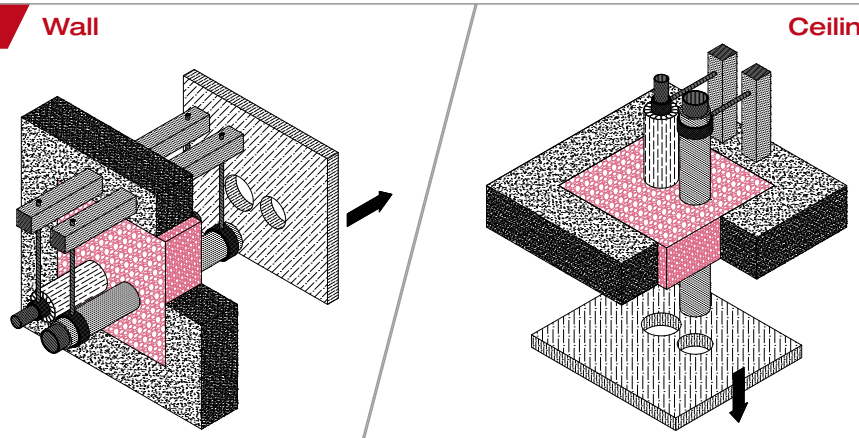
4 Wall / Ceiling



Apply immediately after mixing. Fill wall or ceiling openings, level off flush and smooth lightly using a trowel, spatula, etc.

Ensure that there are no cavities.

5 Wall / Ceiling



The formwork can be removed as soon as it begins to set.
Fill in any imperfections on the side where the formwork has been removed, making sure that these are full and flush. Remove any excess.

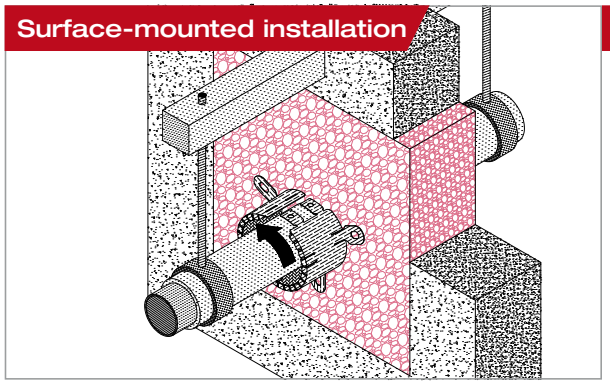
Installation steps – RORCOL surface-mounted

With the closure system, the RORCOL pipe collars are opened, positioned around the pipe and fastened to the TIROTECH® fire protective mortar.

Important: The dimensions of the pipe collar must be selected so that it encloses the pipe or the insulated pipe as tightly as possible!

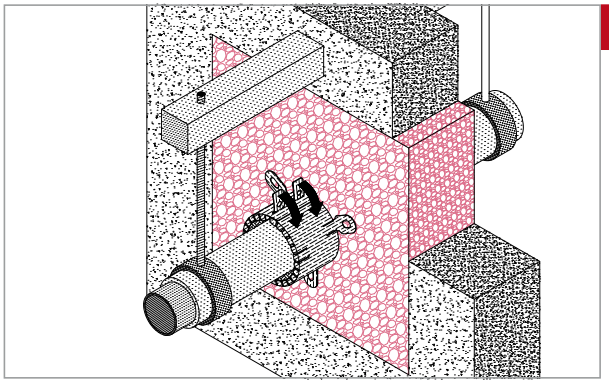
Surface-mounted installation

1



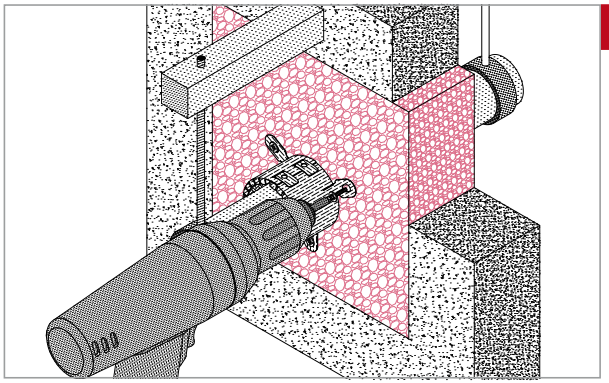
Open the pipe collar and position it around the pipe or insulated pipe.

2



Close the pipe collar using the closure system.

3



Fasten the pipe collar in place using 6 x 90 mm chipboard screws.

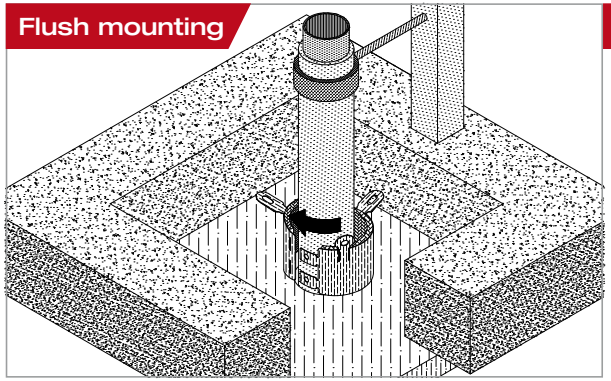
Installation steps – RORCOL flush-mounted

With the closure system, the RORCOL pipe collars are opened, positioned around the pipe and mounted on or flush mounted into the formwork.

Important: The dimensions of the pipe collar must be selected so that it encloses the pipe or the insulated pipe as tightly as possible!

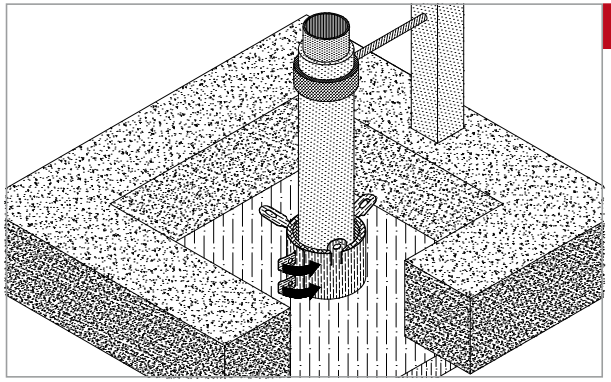
Flush mounting

1



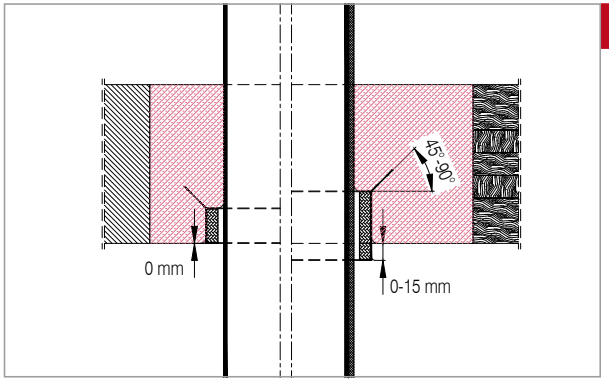
Open the pipe collar and position it around the pipe or insulated pipe.

2



Close the pipe collar using the closure system.

3



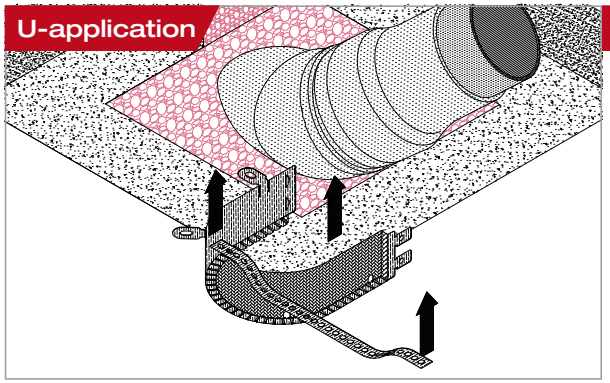
Caution:
The mounting clips must be aligned at an angle of between 45-90°.

The annular gap between the pipe and the pipe collar must not be filled with TIROTECH® fire protective mortar.

Installation steps – RORCOL as U-application

The RORCOL V60 pipe collar, used as U-application, is opened with the closure system, positioned around the sewage elbow and fastened to the TIROTECH® fire protective mortar.

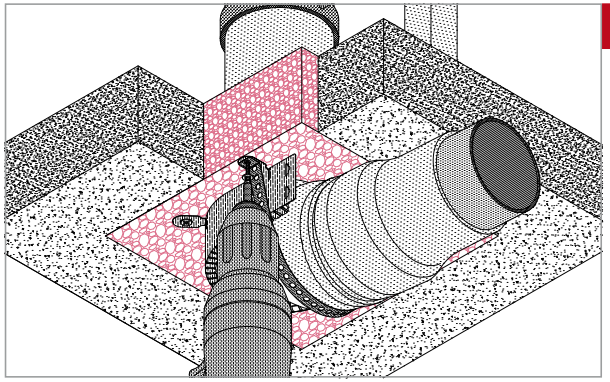
Important: The size of the pipe collar must be one larger than that of the sewage pipe!



1

Open the pipe collar and place it around the insulated sewage elbow(s) on the ceiling.

Position the perforated tape (provided by the customer) as tightly as possible over the sewage pipe and the mounting clips on the closure system of the pipe collar.

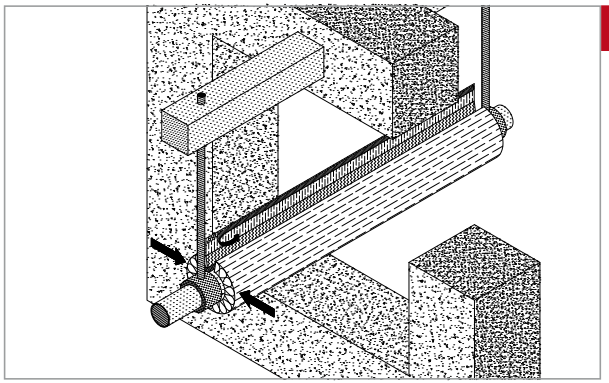


2

Fasten the pipe collar and the perforated tape to the TIROTECH® fire protective mortar using 6 x 90 mm chipboard screws.

Installation steps – pipe section

The pipe section is opened, positioned around the pipe and fastened using the self-adhesive overlap and binding wire.

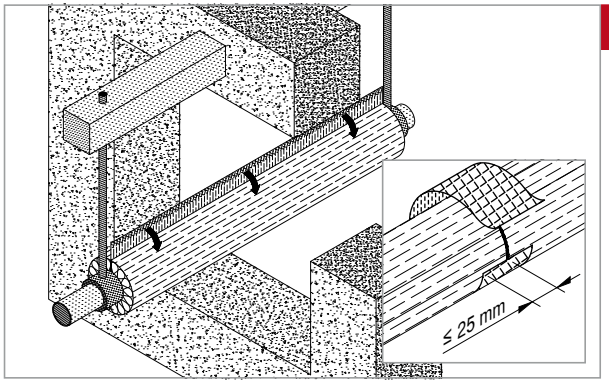


1

Open the pipe section and position it over the metal pipe.

Required insulation lengths:
Pipe ≤ Ø 54 – 1 m
Pipe > Ø 54 – 2 m
(Position in the centre of the separating element)

Close the longitudinal seam by lightly pressing it together and remove the peel-off tape.

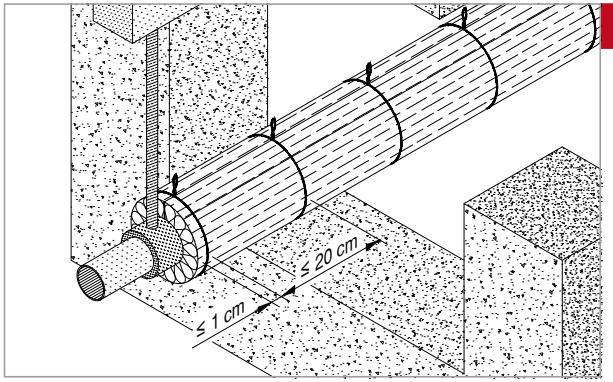


2

Press down the self-adhesive overlap and smooth down with a squeegee.

Each pipe shell must be sealed tightly along the longitudinal joint.

Push the subsequent pipe shells together at the ends and stick them together using pure aluminium adhesive tape with an overlap of at least 25 mm.



3

Fix the pipe shells in place using binding wire (≥ Ø 0.6 mm) with a maximum distance of 20 cm between the windings.

No spiral wrapping!

Use category
The mixed penetration seal TIROTECH® is intended for use at temperatures below 0 °C with UV exposure but without rain exposure, and can therefore be classified as type Y_1 according to EAD 350454-00-1104 point 2.2.9.3.1. Since the requirements for type Y_1 are met, the requirements for type Y_2, Z_1 and Z_2 are also met.

Although a penetration seal is only intended for use inside the building, it may be exposed to the weather to some extent during the construction period for a certain period of time before the building envelope is complete. In this case, measures must be taken to temporarily protect the penetration seals from the weather.

It must be ensured that...
- ...any damage to the penetration seal is repaired accordingly.
- ...installation of the penetration seal does not affect the structural integrity of the neighbouring structural part, including in the event of fire.
- ...the lintel or ceiling above the penetration seal is dimensioned statically and for fire protection in such a way that the penetration seal is not subjected to any additional vertical load (other than its own weight).
- ...the thermal expansion of the pipe is absorbed in such a way that there is no load on the penetration seal.
- ...the ducts are fixed to the adjacent element (not to the penetration seal) according to the applicable regulations, so that in the event of a fire no additional mechanical load can be placed on the penetration seal.
- ...the fixing of the ducts is maintained during the classification period. (Melting point ≥ 1006 °C for EI90 or ≥ 1049 °C for EI120)
- ...in the event of fire, additional measures must be taken to shut down pneumatic conveyors, compressed air lines, etc.

Labelling
A completed identification plate must be attached.

Safety
Keep away from children.
Keep away from food, drink and animal feed.

Storage
Store in a cool and dry place.
TIROTECH® fire protective mortar can be stored for 6 months in a dry place.

Preparation and substrate
Openings in walls and floors/ceilings must be boarded on one side. The faces of the recess must be solid, dry and free from any dust or grease. Due to the light weight and the consistency of the fire protective mortar, roughly cut EPS or XPS insulation boards, for example, can be used for the formwork. Fire-resistant plasterboards (thickness ≥ 15 mm) or steel sheets (thickness ≥ 1 mm) can be used as permanent formwork.

When installing in flexible walls, the opening in the wall must be lined all round with the same profiles that are used for the flexible wall.
These profiles must be completely filled with TIROTECH® fire protective mortar.
For more details, see page 19.

When installing in cross-laminated timber walls or ceilings, a reinforcement of screws or nails is required. For more details, see page 20.

Application
Pour approx. 5 litres of pure water into a round mortar trough with a minimum capacity of 50 litres. Add the entire contents of a bag (30 litres) of TIROTECH® fire protective mortar and stir with a whisk (≥ Ø 12 cm) for approx. 1 minute until a trowel-ready mortar is formed. Add any additional water required during the mixing process. Because TIROTECH® fire protective mortar sets immediately, it must be used straight after mixing! To do this, pour the mortar into the ceiling hollow in one operation until it reaches the full thickness of the recess or apply it to the wall area – making sure there are no cavities – and then level and smooth it out lightly using a trowel, spatula, etc.

As soon as the TIROTECH® fire protective mortar starts to set – usually after a few minutes, depending on the ambient temperature – the formwork can be removed from the back/bottom of the penetration seal. Fill any voids on the side where the formwork has been removed with TIROTECH® fire protective mortar, ensuring that they are full and flush, and remove any excess.

The temperature of the material during application should be at least 8 °C. The yield is 30 litres of wet mortar.

Subsequent processing
If pipes, cables or conduits are to be laid subsequently in the cured mortar seal, ensure that the annular gap or other imperfections are sealed after (core) drilling and installation (see above).

Use category
TIROTECH® fire protective mortar is intended for use in areas exposed to weathering and can therefore be classified as type X according to EAD 350454-00-1104 point 2.2.9.3.1.
Materials that fulfil the requirements for type X also fulfil the requirements for type Y_1, Y_2, Z_1 and Z_2. Materials that fulfil the requirements for type Y_1 also fulfil the requirements for type Y_2, Z_1 and Z_2. Materials that fulfil the requirements for type Y_2 also fulfil the requirements for type Z_1 and Z_2. Materials that fulfil the requirements for type Z_1 also fulfil the requirements for Z_2.

Installation
When installed in walls, the pipe collars must be installed on one or both sides; when installed in floors/ceilings, they must be installed on the underside of the floor/ceiling. Observe the national building regulations during use and during installation. The product must not be modified and must not be exposed to any mechanical loads. Fire transmission downwards, caused by burning material dripping through a pipe to lower floors, is not assessed in the European Technical Assessment. The installation must be carried out exclusively by authorised personnel. The suitability of our products for the specific requirements must be verified by the user. The pipe collars must be selected so that they enclose the pipe to be sealed as tightly as possible.

For penetration elements and classifications not mentioned in these installation instructions, please contact GOIDINGER Bau- und Leichtbeton GmbH.

Service support construction collars in place
The pipe collar must be fixed with non-combustible screws.

Type of installation	Permissible fixing methods
Surface-mounted	Chipboard screws ≥ 6 x 90 mm
Flush-mounted	No additional fixing required

Insulation
Continued Sustained insulation (CS) must have a minimum length of 500 mm in both directions measured from the surface of the separating element, Local Sustained insulation (LS) must have a minimum length of 100 mm in both directions.
For detailed insulation materials and thicknesses, see "Permissible Insulation" table on page 26 and installation details on page 28-41.

Pipe end configurations
Plastic pipes are tested U/U (uncapped/uncapped).
Multi-layer composite pipes are tested U/C (uncapped/capped).
Metal pipes are tested U/C (uncapped/capped).
Electrical conduits are tested U/C (uncapped/capped). They must be sealed on at least one side of the penetration seal with commercially available silicone sealant.

Pipe fixing
All conduits must be fixed on both sides of the wall or above the ceiling using non-combustible suspension systems. The maximum permissible distance from the separating element to the suspension system is 50 cm. The fixing must be selected so that the pipe clamp encloses the pipe as tightly as possible and ensures rigid suspension. Simply placing or laying the pipe in the pipe clamp is not permitted.

Installation
Pipe section must be positioned in the centre of the wall or in the centre of the ceiling. Observe the national building regulations during use and during installation. The product must not be modified and must not be exposed to any mechanical loads. The installation must be carried out exclusively by authorised personnel. The suitability of our products for the specific requirements at hand must be verified by the user.

For penetration elements and classifications not mentioned in these installation instructions, please contact GOIDINGER Bau- und Leichtbeton GmbH.

Fixing the insulation sections in place
Insulation sections must be fixed with binding wire (min. Ø 0.6 mm), with a maximum distance of 20 cm between the windings (no spiral wrapping). The first winding must be positioned 10 mm from the surface of the separating element, and the last winding 10 mm from the edge of the insulation section.

Joining insulation sections
To join pipe shells, position them end to end with no clearance and bond them using aluminium adhesive tape with an overlap of at least 25 mm.

Insulation length
For metal pipes with an external diameter ≤ 54 mm, insulation sections must have an insulation length of at least 1 m, and for an external diameter > 54 mm they must have an insulation length of at least 2 m (positioned in the centre of the separating element). In the case of diagonal installation, the minimum insulation length, measured from the surface of the separating element, must be observed. This is at least 450 mm when installed in walls and 430 mm when installed in ceilings for metal conduits with an external diameter ≤ 54 mm and at least 950 mm when installed in walls and 930 mm when installed in ceilings for metal conduits with an external diameter > 54 mm. – see installation details on page 42.

Pipe end configurations
Metal pipes are tested U/C (uncapped/capped).

Pipe fixing
All conduits must be fixed on both sides of the wall or above the ceiling using non-combustible suspension systems. The maximum permissible distance from the separating element to the suspension system is 50 cm. The fixing must be selected so that the pipe clamp encloses the pipe as tightly as possible and ensures rigid suspension. Simply placing or laying the pipe in the pipe clamp is not permitted.

Certificate of Constancy of Performance

Stadt Wien | Prüf-, Inspektions- und Zertifizierungsstelle

Notified Body No. 1139

Zertifikat der Leistungsbeständigkeit

1139-CPR-0668/17 (3. Neufassung)

Gemäß der Verordnung (EU) Nr. 305/2011 des Europäischen Parlaments und des Rates vom 9. März 2011 (Bauprodukteverordnung - CPR), gilt dieses Zertifikat für die Bauprodukte

Brandschutzprodukte zum Abdichten und Verschließen von Fugen und Öffnungen und zum Aufhalten von Feuer im Brandfall: Abschottungen

Brandschutzmörtel mit der Handelsbezeichnung „TIROTECH®"

in Verkehr gebracht unter dem Namen oder der Handelsmarke von

Goidinger Bau- und Leichtbeton GmbH
A-6112 Wattens, Salzburgerstraße 40

und hergestellt im Herstellungsbetrieb

Goidinger Bau- und Leichtbeton GmbH
Werk Wattens

Dieses Zertifikat bescheinigt, dass alle Vorschriften über die Bewertung und Überprüfung der Leistungsbeständigkeit beschrieben in der

ETA-17/0586, herausgegeben am 11.08.2023

und

EAD 350454-00-1104

entsprechend System 1 für die in der ETA ausgewiesene Leistung angewendet werden und dass die vom Hersteller durchgeführte werkseigene Produktionskontrolle bewertet wurde zur Sicherstellung der

Leistungsbeständigkeit des Bauprodukts.

Dieses Zertifikat wurde erstmals am 18. August 2017 ausgestellt. Die vorliegende 3. Neufassung des Zertifikates 1139-CPR-0668/17 ersetzt die 2. Neufassung des Zertifikates vom 10. November 2020 und bleibt gültig, solange weder die ETA, das EAD, das Bauprodukt, das AVCP-Verfahren noch die Herstellbedingungen im Werk wesentlich geändert werden und sofern es nicht von der notifizierten Produktzertifizierungsstelle ausgesetzt oder zurückgezogen wird.

Leiter der Zertifizierungsstelle
Dipl.-Ing. Martin Fehringer
Oberstadtbaurat

Prüf-, Inspektions- und Zertifizierungsstelle Magistratsabteilung 39 Stadt Wien

Leiter der Prüf- Inspektions- und Zertifizierungsstelle
Dipl.-Ing. Georg Pommer
Senatsrat

Wien, 13. November 2023

MA 39 – CE 23-06054 – Rinnböckstraße 15/2, 1110 Wien, post@ma39.wien.gv.at

DECLARATION OF PERFORMANCE

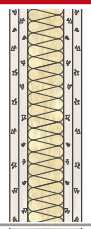
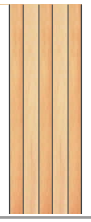
No. 2023/TIROTECH according to Annex III of Regulation (EU) No. 305/2011 (Construction Products Regulation)

1. **Unique identifier code of the product type:** TIROTECH®
2. **Intended application:** Penetration sealing of combustible pipes, non-combustible pipes and cables through walls and ceilings according to installation instructions for ETA-17/0586
3. **Manufacturer:** GOIDINGER Bau- und Leichtbeton GmbH
   Salzburger Straße 40
   6112 Wattens
   AUSTRIA
4. **System(s) for assessment and verification of constancy of performance:** System 1
5. **European Assessment Document:** EAD 350454-00-1104, September 2017 edition
   European Technical Assessment: ETA-17/0586 of 11/08/2023
   Technical Assessment Body: Austrian Institute of Construction Engineering (OIB)
   Notified body: NB 1139 – Municipal Department 39 – Testing, inspection and certification body of the City of Vienna
6. **Declared performance:**

Essential characteristics	Performance	Harmonised technical specification
Fire behaviour		
TIROTECH® fire protective mortar	Class A2-s1, d0	EN 13501-1
RORCOL V30 pipe collar	Class E	
RORCOL V60 pipe collar	Class E	
RORCOL AV60 pipe collar	Class E	
RORCOL M pipe collar	Class E	
FIRE PROOF pipe section	Class $A2_L$-s1, d0	
Rockwool 800 pipe section	Class $A2_L$-s1, d0	
Hazardous substances		
None		Council Directive 67/548/EEC, Regulation (EC) no 1272/2008 and EOTA Technical Report TR 034
Durability and serviceability		
TIROTECH® fire protective mortar	Use category X	EOTA Technical Report TR 024
RORCOL V30 pipe collar	Use category Y_1	
RORCOL V60 pipe collar	Use category Y_1	
RORCOL AV60 pipe collar	Use category Y_1	
RORCOL M pipe collar	Use category Y_1	
FIRE PROOF pipe section	Use category Y_1	
Rockwool 800 pipe section	Use category Y_1	

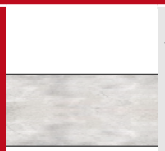
DECLARATION OF PERFORMANCE

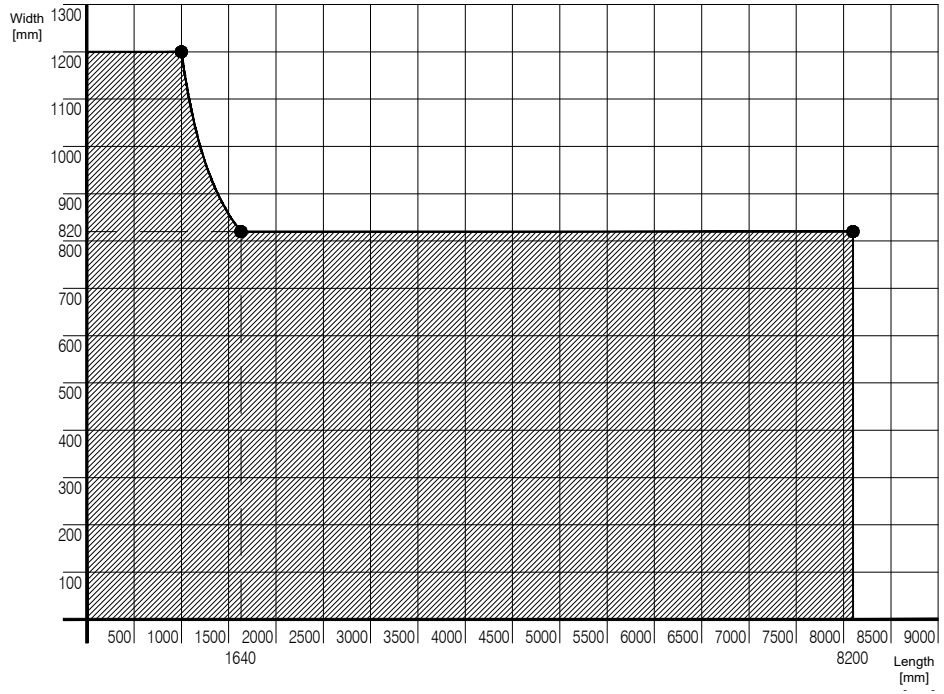
Permissible separating elements/penetration seal sizes

Separating element		Maximum penetration seal size [mm]	Page
FW	 **Flexible walls** Thickness ≥ 100 mm Steel studs (CW profiles), cladding on both sides at least 12.5 mm thick and at least 2 layers, boards with classification A2-s1,d0 or A1 as per EN 13501-1	**1000 x 600**	**28**
RW	 **Rigid walls** Thickness ≥ 100 mm Density ≥ 500 kg/m³ Concrete and masonry components	**1200 x 1000**	**30**
TW	 **Cross-laminated timber walls** According to ETA-06/0138 (KLH Massivholz GmbH), ETA-09/0036 (Mayr-Melnhof Holz Holding AG), ETA-12/0281 (HASSLACHER Holding GmbH), ETA-14/0349 (Stora Enso Wood Products GmbH), or ETA-20/0843 (Theurl Timber Structures GmbH) Thickness ≥ 100 mm, with or without cladding consisting of plasterboard as per EN 520	**1200 x 1000**	**30**

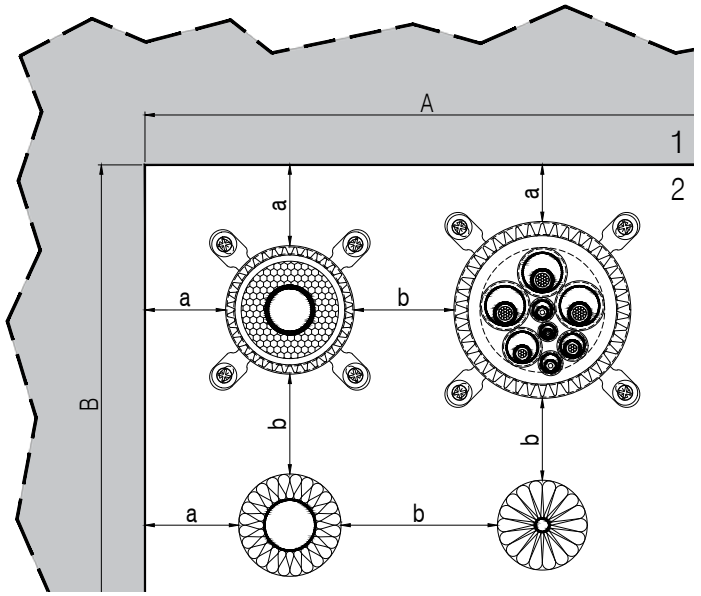
DECLARATION OF PERFORMANCE

Permissible separating elements/penetration seal sizes

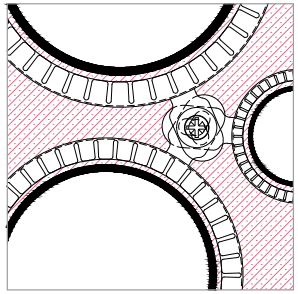
Separating element		Maximum penetration seal size [mm]	Page
RW	 **Rigid floors/ceilings** Thickness ≥ 140 mm Density ≥ 500 kg/m³	**1200 x 800** or as per diagram	**34**
TF	 **Cross-laminated timber floors/ceilings** According to ETA-06/0138 (KLH Massivholz GmbH), ETA-09/0036 (Mayr-Melnhof Holz Holding AG), ETA-12/0281 (HASSLACHER Holding GmbH), ETA-14/0349 (Stora Enso Wood Products GmbH), or ETA-20/0843 (Theurl Timber Structures GmbH) Thickness ≥ 140 mm, with or without cladding consisting of plasterboard as per EN 520	**1200 x 800** or as per diagram	**34**



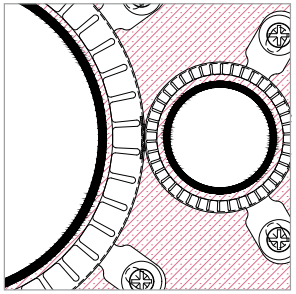
Working clearance



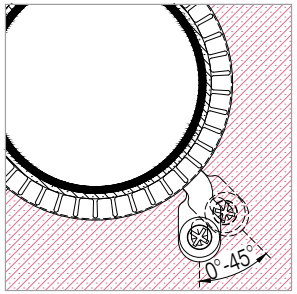
1	Separating element
2	Mixed penetration seal TIROTECH®
a = 30 mm	Minimum distance between RORCOL pipe collars and the edge of the penetration seal or between pipe sections and the edge of the penetration seal
b = 0 mm	Minimum distance between RORCOL pipe collars, between pipe sections or between RORCOL pipe collars and pipe sections
A x B	Penetration seal size, see page 16-17



Shared screw fixing for up to 3 pipe collars



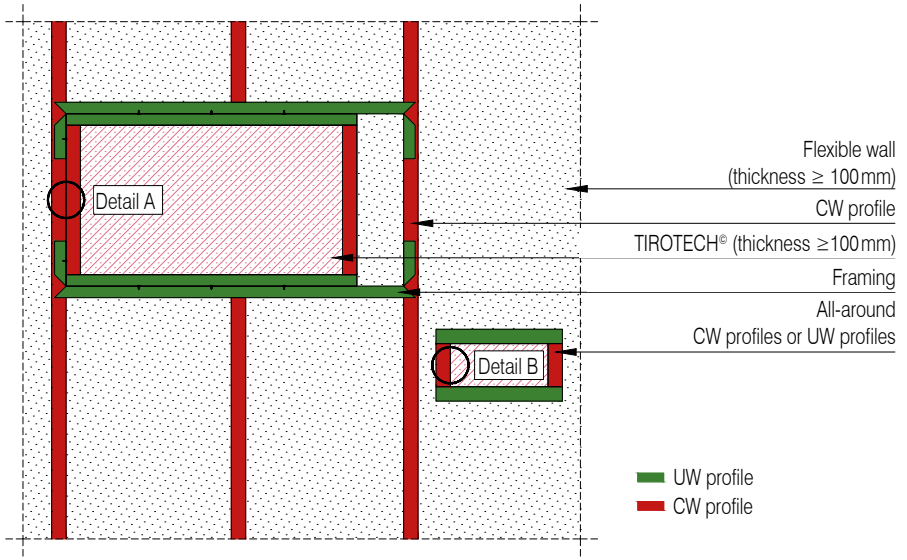
Fitted mounting clips

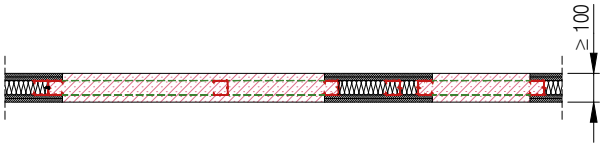


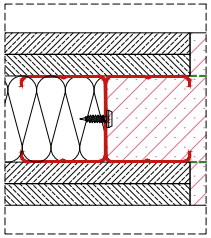
Twistable mounting clips

Reveal design – flexible walls

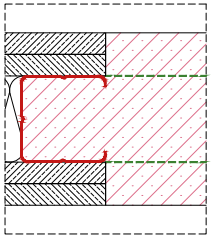
When installing in flexible walls, the opening in the wall must be lined all round with the same profiles that are used for the flexible wall.
These profiles must be completely filled with TIROTECH® fire protective mortar.







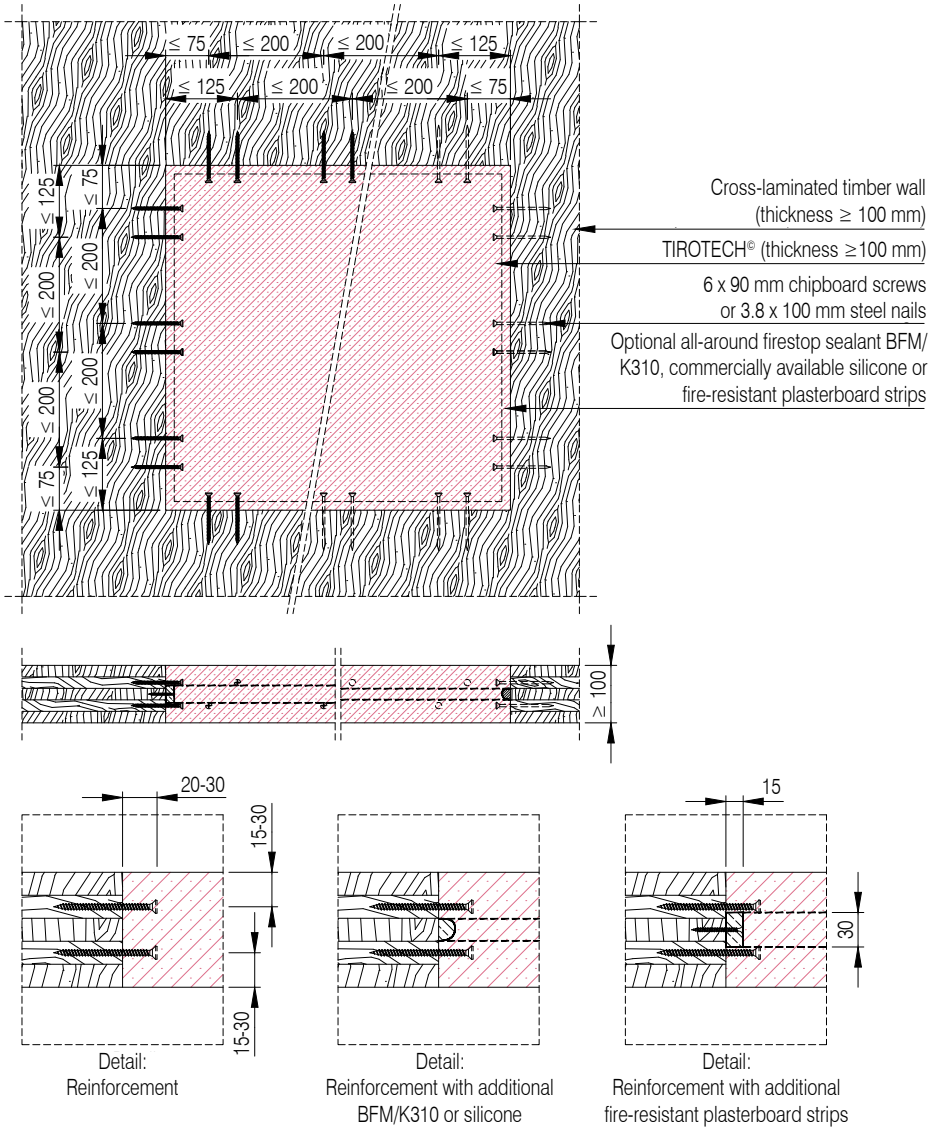
Detail A



Detail B

Reinforcement – cross-laminated timber walls

When installing in cross-laminated timber walls, steel nails or chipboard screws must be used around the perimeter of the openings as reinforcement. For improved smoke tightness, the wall opening must be sealed all round using AIR FIRE TECH firestop sealant BFM/K310, commercially available silicone or fire-resistant plasterboard strips.



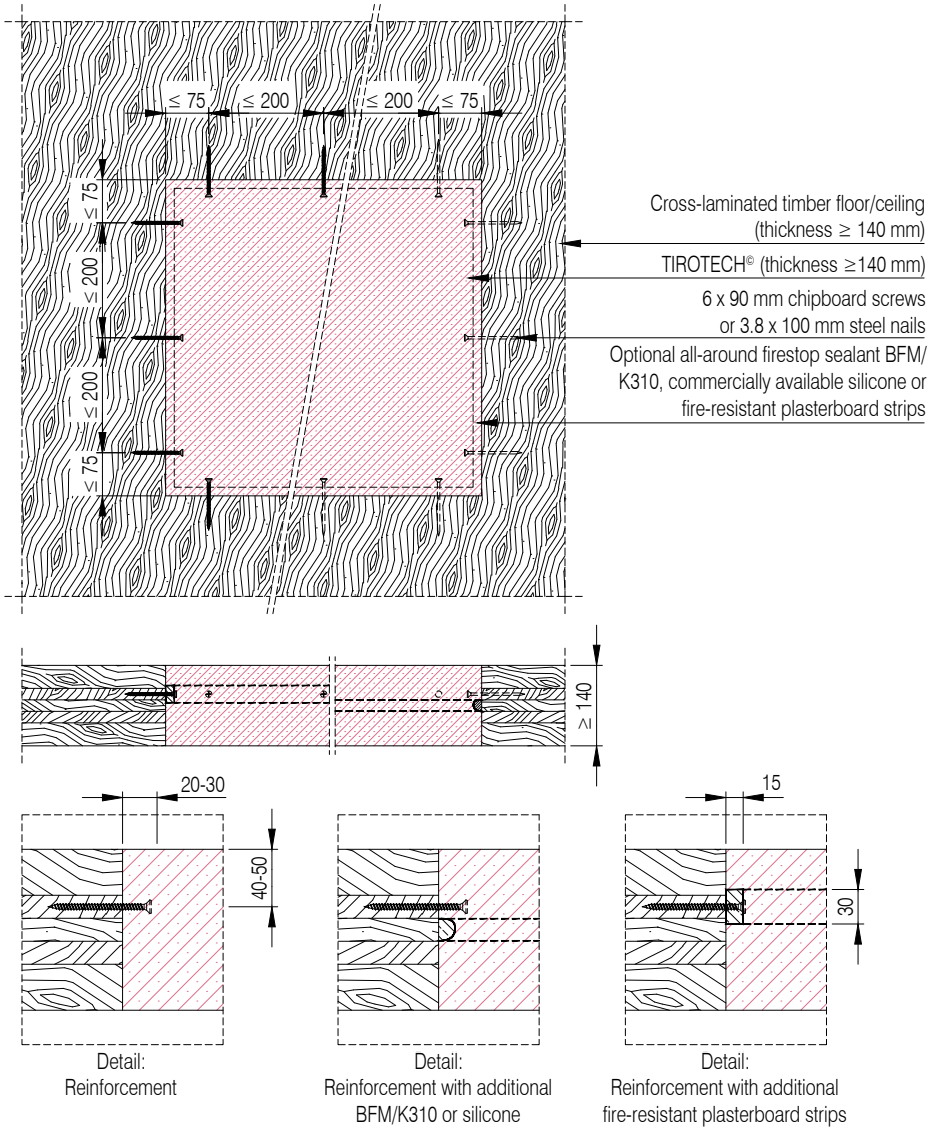
Detail: Reinforcement

Detail: Reinforcement with additional BFM/K310 or silicone

Detail: Reinforcement with additional fire-resistant plasterboard strips

Reinforcement – cross-laminated timber floors/ceilings

When installing in cross-laminated timber floors/ceilings, steel nails or chipboard screws must be used around the perimeter of the openings as reinforcement. For improved smoke tightness, the wall opening must be sealed all round using AIR FIRE TECH firestop sealant BFM/K310, commercially available silicone or fire-resistant plasterboard strips.



Detail: Reinforcement

Detail: Reinforcement with additional BFM/K310 or silicone

Detail: Reinforcement with additional fire-resistant plasterboard strips

Permissible pipe types

Pipe collar	Material / product	Standard / manufacturer	Permissible separating elements / outer pipe diameter					Pipe end configuration
			FW	RW	TW	RF	TF	
RORCOL V30 and RORCOL V60	ABS	EN 1455-1	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	U/U
		EN 15493	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	PE-HD	EN 12201-2, DIN 8074/DIN 8075	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Pipelife PE100							
	PE	EN 12666-1	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	PE	EN ISO 15494	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	PE-HD	EN 1519-1, DIN 8074/DIN 8075	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Geberit PE							
	Geberit Silent-db20							
	Wavin PE							
	PP	EN ISO 15494	≤ 110	≤ 110	≤ 160	≤ 160	≤ 160	
	PP	EN ISO 15874-2, DIN 8077/DIN 8078	≤ 110	≤ 110	≤ 160	≤ 160	≤ 160	
	PP	EN 1451-1, DIN 8077/DIN 8078	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Ostendorf HT							
	Rehau HT							
	Valsir PP							
	Blackfire®	Valsir S.p.A.	–	≤ 160	≤ 160[2]	75, 110	75[2], 110[2]	
	DYKAStil®	DYKA B.V.	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Geberit Silent-PP	Geberit Vertriebs GmbH	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Geberit Silent-Pro	Geberit Vertriebs GmbH	–	–	–	≤ 160	≤ 160[2]	
	Pipelife Master 3 PLUS	Pipelife Austria GmbH & Co KG	50	≤ 160	≤ 160	≤ 160	≤ 125	
	POLO-KAL 3S	POLOPLAST GMBH & CO KG	75, 110	≤ 160	≤ 160	≤ 160	≤ 160	
	POLO-KAL NG	POLOPLAST GMBH & CO KG	50, 110	≤ 160	≤ 160	≤ 160	≤ 160	
	POLO-KAL XS	POLOPLAST GMBH & CO KG	50, 110	≤ 160	≤ 160	≤ 160	≤ 160	
	RAUPIANO PLUS	REHAU Gesellschaft m.b.H	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
	SANHA Master 3 PLUS	SANHA GmbH & Co. KG	50	≤ 160	≤ 160	≤ 125	≤ 125	
	RAUTITAN flex	REHAU Gesellschaft m.b.H	50	50	–	≤ 50	≤ 50[2]	
	PhonEX® AS	KE KELIT Kunststoffwerk GmbH	≤ 110	≤ 135	135	–	–	
	Valsir Silere	Valsir S.p.A.	58, 110	≤ 160	≤ 160	≤ 160	≤ 160	
	Wavin AS	Wavin GmbH	≤ 110	≤ 135	135	–	–	
	PVC-U	EN 1329-1	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
		EN 1401-1, DIN 8061/DIN 8062	–	110	–	–	–	
		EN 1452-2/DIN 8062	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
		EN 1453-1						
		EN ISO 15493						
	PVC-C	EN 1566-1	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
		EN ISO 15493						
		EN 15877-2						
	SAN+PVC	ISO 19220	≤ 110	≤ 160	≤ 160	≤ 160	≤ 160	
RORCOL V60 as a U application	PP	EN 1451-1, DIN 8077/DIN 8078	–	–	–	≤ 110	50[3], 75[3], 110[3]	U/U
	POLO-KAL NG	POLOPLAST GMBH & CO KG	–	–	–	≤ 125	110[3], 125[3]	
	Valsir Silere	Valsir S.p.A.	–	–	–	≤ 135	58[3], 110[3], 135[3]	

(1) Exclusively cross-laminated timber constructions according to ETA-06/0138, ETA-09/0036 and ETA-14/0349
(2) Exclusively cross-laminated timber constructions according to ETA-12/0281 and ETA-20/0843
(3) Exclusively cross-laminated timber constructions according to ETA-14/0349

DECLARATION OF PERFORMANCE

Permissible pipe types

DECLARATION OF PERFORMANCE

Permissible pipe types

Pipe collar / pipe section	Material or product	Standard or manufacturer	Permissible separating elements / outer pipe diameter					Pipe end configuration
			FW	RW	TW	RF	TF	
RORCOL AV60	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ steel and thermal conductivity ≤ steel	≤ 76	≤ 76	≤ 76	≤ 76	≤ 76	U/C
	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ copper and thermal conductivity ≤ copper	≤ 22	≤ 42	≤ 42	≤ 54	≤ 42	
	alpex multilayer composite pipe	FRÄNKISCHE ROHRWERKE Gebr. Kirchner GmbH & Co. KG	≤ 63	≤ 63	–	–	–	
	CLEVERFIT Radial	Purmo Group Poland sp.z o. o.	≤ 63	≤ 63	–	≤ 63	≤ 63	
	EASYTEC installation conduit	PG Austria GmbH	≤ 63	≤ 63	–	≤ 63	≤ 63	
	Geberit Mepla system pipe	Geberit Vertriebs GmbH	≤ 63	≤ 63	≤ 63	≤ 63	≤ 63	
	Geberit system pipe ML	Geberit Vertriebs GmbH	–	≤ 63	≤ 63	≤ 63	≤ 63[(1)]	
	HENCO multilayer composite pipe	HENCO Industries NV	20	20	20	20	20	
	JRG Sanipex MT	Georg Fischer JRG AG	40	40	–	≤ 63	≤ 63	
	KELOX® modular pipe	KE KELIT Kunststoffwerk GmbH	≤ 75	≤ 75	≤ 63	≤ 63	≤ 63	
	MT multilayer pipe	Winkler GmbH	40	40	–	40-63	40-63	
	PERTAL[2]	KAN-therm GmbH	≤ 63	≤ 63	–	≤ 20	≤ 20	
	POLYSAN/REVI aluminium composite pipe	Polysan Handelsgesmbh & Co KG	20	20	20	20	20	
	PRINETO Stabil pipe	IVT Installations- und Verbindungstechnik GmbH & CO. KG	≤ 63	≤ 63	–	–	–	
	RADOPRESS	Pipelife Austria GmbH & Co KG	≤ 40	≤ 40	–	≤ 63	≤ 63	
	RAUTITAN stabil	REHAU Gesellschaft m.b.H.	≤ 40	≤ 63	≤ 63	≤ 63	≤ 63	
	Raxofix multilayer composite pipe	Viega GmbH	≤ 63	≤ 63	≤ 63	50	≤ 50	
	Roth Alu-Laserplus® system pipe	ROTH WERKE GMBH	≤ 63	≤ 63	–	–	–	
	STEELOX® Plus	KE KELIT Kunststoffwerk GmbH	–	≤ 25	–	≤ 25	–	
	TECEflex composite pipe	TECE GmbH	≤ 63	≤ 63	≤ 63	≤ 63	≤ 63	
	TECElogo composite pipe	TECE GmbH	≤ 63	≤ 63	–	–	–	
	Uponor composite pipe	Uponor Vertriebs GmbH	≤ 63	≤ 63	≤ 63	≤ 50	≤ 50	
	Plastic electrical conduits with an outer diameter of ≤ 40 mm (with/without cable with an outer diameter of ≤ 21 mm)		✓	✓	✓	✓	✓	
	Tightly secured bundles up to a total diameter ≤ 100 mm consisting of plastic electrical conduits with an outer diameter of ≤ 40 mm (with/without cable with an outer diameter of ≤ 21 mm)		✓	✓	✓	✓	✓	
	All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter of ≤ 21 mm		✓	✓	✓	✓	✓	–
	Tightly secured cable bundles up to a total diameter of ≤ 100 mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter of ≤ 21 mm		✓	✓	✓	✓	✓	
RORCOL M	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ steel and thermal conductivity ≤ steel	–	≤ 76	–	–	–	U/C
FIRE PROOF	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ steel and thermal conductivity ≤ steel	≤ 76	≤ 76	≤ 76	≤ 76	≤ 76	U/C
	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ copper and thermal conductivity ≤ copper	≤ 42	≤ 42	≤ 42	≤ 54	≤ 54	
Rockwool 800	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ steel and thermal conductivity ≤ steel	–	–	–	–	≤ 76[(1)]	U/C
	Metal pipes	Fire behaviour class A1 as per EN 13501-1, with a melting point ≥ copper and thermal conductivity ≤ copper					≤ 42[(1)]	

[(1)] Exclusively cross-laminated timber constructions according to ETA-06/0138, ETA-09/0036 and ETA-14/0349
[(2)] Exclusively cross-laminated timber constructions according to ETA-12/0281 and ETA-20/0843

Permissible insulation

Material	Product	Manufacturer	Standard
Polyethylene (PE)	e g. steinoflex® 405 R, steinoflex 445®, Tubolit AR Fonoblok	e.g. Steinbach Dämmstoff GmbH, Armacell Austria GmbH	EN 14313
	Alpex F50 PROFI pre-insulated multilayer composite pipe	FRÄNKISCHE ROHRWERKE Gebr. Kirchner GmbH & Co. KG	
	Alu-Laserplus pre-insulated	ROTH WERKE GMBH	
	Astraflex PE	Armacell Austria GmbH	
	CLEVERFIT Radial pre-insulated	Purmo Group Poland sp. z o.o.	
	Insulation pre-insulated pipe concentric	IVT Installations- und Verbindungstechnik GmbH & Co. KG	
	EasyTec pipe pre-insulated	PG Austria GmbH	
	Geberit system pipe ML pre-insulated	Geberit Vertriebs GmbH & Co KG	
	Geberit Mepla system pipe pre-insulated	Geberit Vertriebs GmbH & Co KG	
	Henco pipe insulated standard	Henco Industries NV	
	JRG Sanipex MT insulated	Georg Fischer JRG AG	
	KELOX Plus	KE KELIT Kunststoffwerk GesmbH	
	MT multilayer pipe with thermal insulation	Winkler GmbH	
	PERTAL^2 with insulating hose	KAN-therm GmbH	
	POLYSAN/REVI aluminium composite pipe with insulation	Polysan HandelsgesmbH & Co KG	
	Radopress pre-insulated	Pipelife Austria GmbH & Co KG	
	Rautitan stabil pre-insulated	REHAU Gesellschaft m.b.H	
	Raxofix multilayer composite pipe with all-round insulation	Viega GmbH	
	STEELOX Plus	KE KELIT Kunststoffwerk GesmbH	
	TECEflex multilayer composite pipe pre-insulated	TECE GmbH	
	TECElogo multilayer composite pipe pre-insulated	TECE GmbH	
	Uponor Uni Pipe PLUS white pre-insulated	Uponor Vertriebs GmbH	
Elastomeric foam (EL)	AF/Armaflex	Armacell GmbH Armacell Poland Sp.zo.o. Armacell Iberia, S.L.	–
	Armaflex XG		
	Kaiflex-ST	Kaimann GmbH	
	K-FLEX ST	L'ISOLANTE K-FLEX S.p.A.	
Polyester fleece (PV)	Austrovlies® thin wall	Armacell Austria GmbH	–
	Austrovlies® drain		
Mineral wool (AK)	e.g. ISOVER lamella insulation mat LAM/ANB	e.g. Saint-Gobain Austria GmbH	EN 14303
	e.g. Austroflex glass wool lamella mat	e.g. Armacell Austria GmbH	

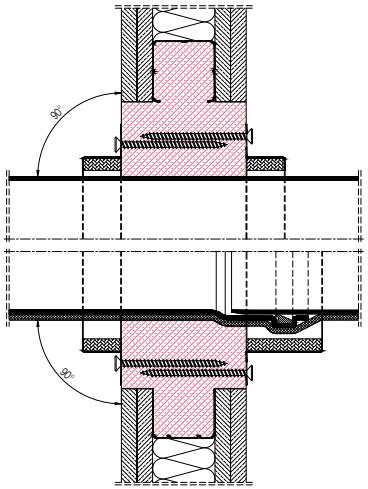
Permissible insulation – standard pipes

Type	Material / product	Standard / manufacturer	Pipe diameter [mm]	Insulation [mm]		Insulation type
				Without	PE	
RORCOL V30 and RORCOL V60	ABS	EN 1455-1	≤ 160	✓	≤ 5	LS/CS
		EN 15493	≤ 160			
	PE	EN 12201-2	≤ 160	✓	≤ 5	
		EN 12666-1				
		EN ISO 15494				
		EN 1519-1				
	PP	EN ISO 15494	≤ 160	✓	≤ 5	
		EN ISO 15874-2				
		EN 1451-1				
	PVC-U	EN 1329-1	≤ 160	✓	≤ 5	
		EN 1401-1				
		EN 1452-2				
		EN 1453-1				
		EN ISO 15493				
	PVC-C	EN 1566-1	≤ 160	✓	≤ 5	
		EN ISO 15493				
		EN 15877-2				
	SAN+PVC	ISO 19220	≤ 160	✓	≤ 5	

Installation details & application areas

1

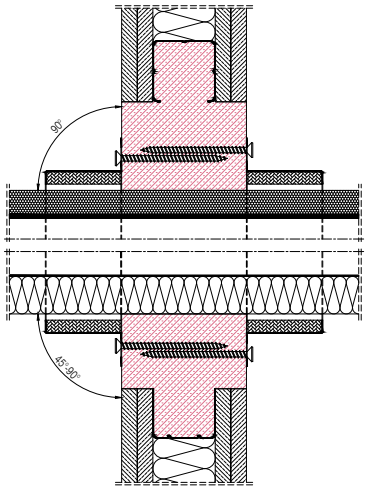
RORCOL V30 or RORCOL V60
for plastic pipes
with/without insulation



RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

2

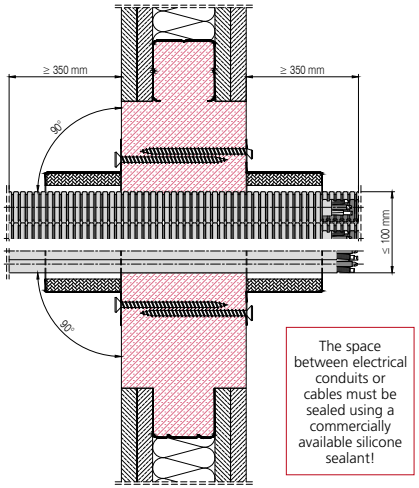
RORCOL AV60
for multi-layer composite pipes



RORCOL AV60
for metal pipes

3

RORCOL AV60 ≤ DN110
for bundles of electrical conduits
with/without cables



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles ≤ Ø100

Flexible walls

Mixed penetration seal with pipe collars
Flexible walls, thickness ≥ 100 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]				Fire resist-ance
					With-out	PE	EL	AK	
RORCOL V30 and RORCOL V60	EN 1519-1	PE	1 pipe	≤ 110	✓	≤ 5	–	–	EI90
	Geberit PE								
	Geberit Silent-db20								
	Wavin PE								
	EN 1451-1	PP			✓	≤ 5	–	–	
	Ostendorf HT								
	Rehau HT								
	Valsir PP								
	DYKA Stil®			≤ 110	✓	–	–	–	
	Geberit Silent-PP			≤ 75	–	5	–	–	
				≤ 110	✓	–	–	–	
	PhonEX AS			≤ 110	–	5	–	–	
	POLO-KAL 3S			75, 110	–	5	–	–	
	POLO-KAL NG/XS			50	✓	–	–	–	
				110	–	5	–	–	
	RAUPIANO PLUS			≤ 110	–	5	–	–	
	Valsir Silere			58	–	5	–	–	
				110	✓	–	–	–	
RORCOL AV60	Multi-layer composite pipes according to "Permissible pipe types" table on page 24-25	Al-PE	4 pipes	≤ 17	–	9-10	9	–	EI90
				≤ 21				≤ 30[1]	
			1 pipe	≤ 26		9-10	9-13		
				≤ 33			9-25	≤ 40	
				≤ 42		–	9-32	≤ 50	
				≤ 52		–	13-32	≤ 60	
				≤ 63		–	13-43	≤ 50	
				≤ 75		–	43	50	
	Metal pipes	Copper/ steel	1 pipe	≤ 16	–	9-10	–	≥ 20	
				≤ 22		–	13		
		Steel	1 pipe	≤ 42			19		
				≤ 76		–	32	≥ 30	

[1] Exclusively single penetrations (1 pipe per collar)

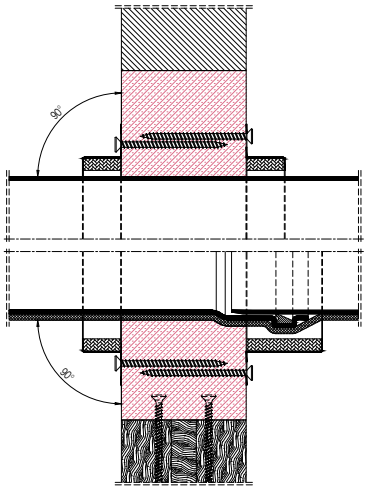
Cable penetration seals with pipe collars
Flexible walls, thickness ≥ 100 mm

Type	Max. DN	Standard / product	Elements fed through	Outer diameter of bundle [mm]	Outer diameter of electrical conduits [mm]	Cable dimensions [mm]	Fire resist-ance
RORCOL AV60	110	EN 61386-22	Bundle of electrical conduits	≤ 100	≤ 40	≤ 21	EI90
		All types of sheathed cables	Cable bundle		–		

Installation details & application areas

4

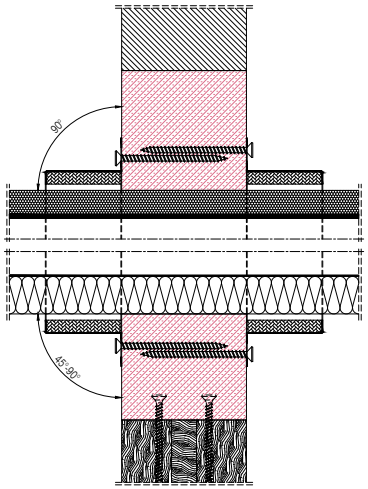
RORCOL V30 or RORCOL V60
for plastic pipes
with/without insulation



RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

5

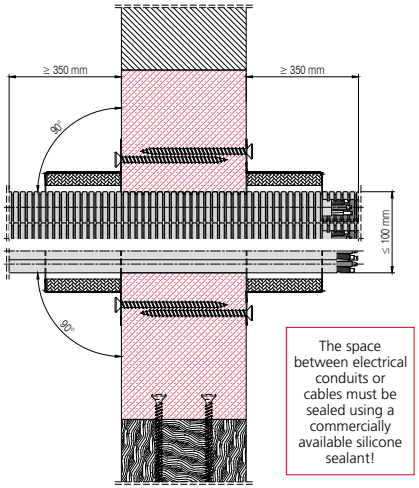
RORCOL AV60
for multi-layer composite pipes



RORCOL AV60
for metal pipes

6

RORCOL AV60 ≤ DN110
for bundles of electrical conduits
with/without cables



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles

Rigid walls & cross-laminated timber walls

Mixed penetration seal with pipe collars
Rigid walls & cross-laminated timber walls, thickness ≥ 100 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]				Fire resist-ance
					Without	PE	EL[4]	AK	
RORCOL V30 and RORCOL V60	EN 1519-1	PE	1 pipe	≤ 160	✓	≤ 5	19 (Ø110)	–	EI90
	Geberit PE								
	Geberit Silent-db20								
	Wavin PE								
	EN 1451-1	PP			✓	≤ 5	9 (Ø125)	–	
	Ostendorf HT								
	Rehau HT								
	Valsir PP								
	Blackfire®[1]				–	5	–	–	
	DYKA Stil®				✓	≤ 5	–	–	
	Geberit Silent-PP				–	5	–	–	
	PhonEX AS			≤ 135	–	5	–	–	
	Pipelife Master 3 PLUS			≤ 160	–	5	–	–	
	POLO-KAL 3S				–	5	–	–	
	POLO-KAL NG/XS				✓	≤ 5	13 (Ø110) 19 (Ø125)	–	
	RAUPIANO PLUS				✓	≤ 5	–	–	
	Valsir Silere				–	5	19 (Ø135)	–	
RORCOL AV60	Multi-layer composite pipes according to "Permissible pipe types" table on page 24-25	Al-PE	4 pipes	≤ 17	–	9-10	9	–	EI90
				≤ 21				≤ 30[2]	
			1 pipe	≤ 26		9-10	9-13		
				≤ 33			9-25	≤ 40	
				≤ 42		–	9-32	≤ 50	
				≤ 52		–	13-32	≤ 60	
				≤ 63		–	13-43	≤ 50	
				≤ 75		–	43	50	
	Metal pipes	Copper / steel	1 pipe	≤ 16	–	9-10[3]	9	≥ 20	
				≤ 22		–	13		
				≤ 42			19		
		Steel		≤ 76		–	32	≥ 30	
RORCOL M	Metal pipes	Steel	1 pipe	≤ 76	–	–	–	≥ 20	EI90

[1] Exclusively rigid walls or cross-laminated timber walls according to ETA-12/0281 and ETA-20/0843
[2] Exclusively single penetrations (1 pipe per collar)
[3] Exclusively rigid walls
[4] Exclusively RORCOL V60 and RORCOL AV60

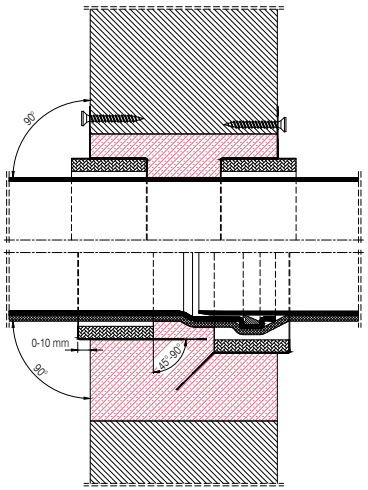
Cable penetration seals with pipe collars
Rigid walls & cross-laminated timber walls, thickness ≥ 100 mm

Type	Max. DN	Standard / product	Elements fed through	Outer diameter of bundle [mm]	Outer diameter of electrical conduits [mm]	Cable dimensions [mm]	Fire resist-ance
RORCOL AV60	110	EN 61386-22	Bundle of electrical conduits	≤ 100	≤ 40	≤ 21	EI90
		All types of sheathed cables	Cable bundle		–		

Installation details & application areas

7

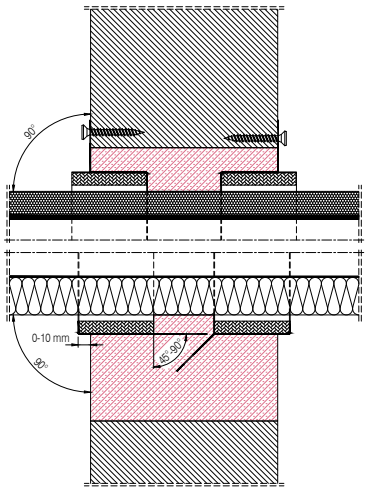
RORCOL V30 or RORCOL V60
for plastic pipes
with/without insulation



RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

8

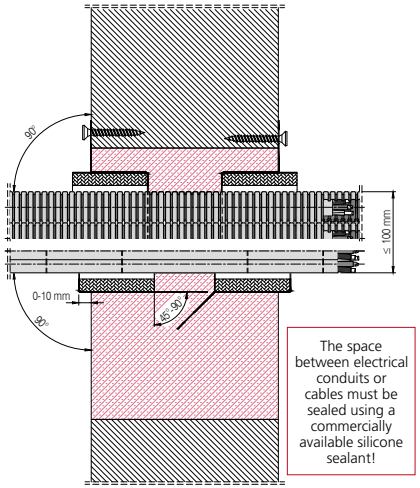
RORCOL AV60
for multi-layer composite pipes



RORCOL AV60
for metal pipes

9

RORCOL AV60 ≤ DN110
for bundles of electrical conduits
with/without cables



RORCOL AV60 ≤ DN110
for cable bundles

Flush mounting in rigid walls

Mixed penetration seal with pipe collars
Rigid walls, thickness ≥ 150 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]				Fire resist-ance
					Without	PE	EL[2]	AK	
RORCOL V30 and RORCOL V60	EN 1519-1	PE	1 pipe	≤ 160	✓	≤ 5	19 (Ø 110)	–	EI90
	Geberit PE								
	Geberit Silent-db20								
	Wavin PE								
	EN 1451-1	PP			✓	≤ 5	9 (Ø 125)	–	
	Ostendorf HT								
	Rehau HT								
	Valsir PP								
	Blackfire®				–	5	–	–	
	DYKA Stil®				✓	≤ 5	–	–	
	Geberit Silent-PP				–	5	–	–	
	PhonEX AS			≤ 135	–	5	–	–	
	Pipelife Master 3 PLUS			≤ 160	–	5	–	–	
	POLO-KAL 3S				–	5	–	–	
	POLO-KAL NG/XS				✓	≤ 5	13 (Ø110) 19 (Ø125)	–	
	RAUPIANO PLUS				✓	≤ 5	–	–	
	Valsir Silere				–	5	19 (Ø125)	–	
RORCOL AV60	Multi-layer composite pipes according to "Permissible pipe types" table on page 24-25	Al-PE	4 pipes	≤ 17	–	9-10	9	–	EI90
				≤ 21				≤ 30[1]	
			1 pipe	≤ 26		9-10	9-13		
				≤ 33			9-25	≤ 40	
				≤ 42		–	9-32	≤ 50	
				≤ 52		–	13-32	≤ 60	
				≤ 63		–	13-43	≤ 50	
				≤ 75		–	43	50	
	Metal pipes	Copper/ steel	1 pipe	≤ 16	–	9-10	9	≥ 20	
				≤ 22		–	13		
				≤ 42			19		
		Steel		≤ 76		–	32	≥ 30	

[1] Exclusively for single penetrations (1 pipe per collar)
[2] Exclusively RORCOL V60 and RORCOL AV60

Cable penetration seals with pipe collars
Rigid walls, thickness ≥ 150 mm

Type	Max. DN	Standard / product	Elements fed through	Outer diameter of bundle [mm]	Outer diameter of electrical conduits [mm]	Cable dimensions [mm]	Fire resist-ance
RORCOL AV60	110	EN 61386-22	Bundle of electrical conduits	≤ 100	≤ 40	≤ 21	EI90
		All types of sheathed cables	Cable bundle		–		

Installation details & application areas

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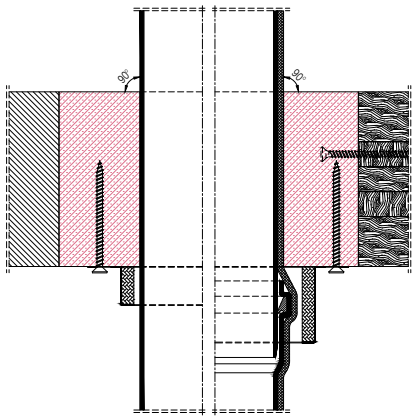
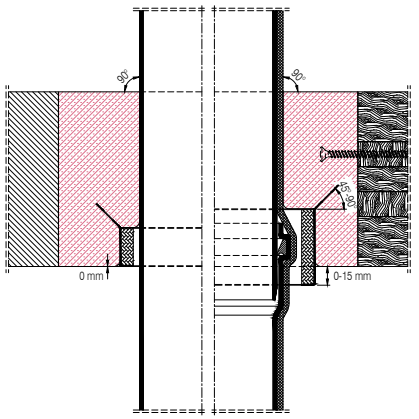


RORCOL V30 or RORCOL V60
for plastic pipes
with/without insulation

RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

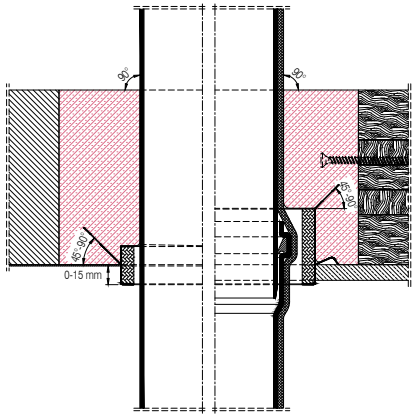
11



RORCOL V30 or RORCOL V60
for plastic pipes with/without insulation

RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

12 Installation with permanent formwork



RORCOL V30 or RORCOL V60
for plastic pipes
with/without insulation

RORCOL V60
for plastic pipes with sleeve coupling
with/without insulation

Rigid floors/ceilings & cross-laminated timber floors/ceilings

Mixed penetration seal with pipe collars
Rigid floors/ceilings & cross laminated timber floors/ceilings, thickness ≥ 140 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]				Fire resist-ance
					without	PE	EL[2e]	AK	
RORCOL V30 and RORCOL V60	EN 1519-1	PE	1 pipe	≤ 160	✓	≤ 5	13 (Ø110) 19 (Ø135)	–	EI90
	Geberit PE								
	Geberit Silent-db20								
	Wavin PE								
	EN 1451-1	PP		≤ 160	✓	≤ 5	13 (Ø110) 19 (Ø125)	–	
	Ostendorf HT								
	Rehau HT								
	Valsir PP								
	Blackfire®			75, 110	–	5	–	–	
	DYKA Stil®			≤ 160	✓	≤ 5	13 (Ø110) 19 (Ø125)	–	
	Geberit Silent-PP			≤ 160	–	5	–	–	
	Geberit Silent-Pro[1]			≤ 160	–	5	–	–	
	PhonEX AS			≤ 135	–	5	–	–	
	Pipelife Master 3 PLUS			≤ 125	–	5	–	–	
	POLO-KAL 3S			≤ 160	–	5	–	–	
	POLO-KAL NG/XS			≤ 160	–	5	13 (Ø110) 19 (Ø125)	–	
	RAUPIANO PLUS			≤ 160	✓	≤ 5	–	–	
	Valsir Silere			≤ 160	–	5	19 (Ø125)	–	

[1] Exclusively cross laminated timber floors/ceilings according to ETA-12/0281 and ETA-20/0843
[2] Exclusively RORCOL V60

Installation details & application areas

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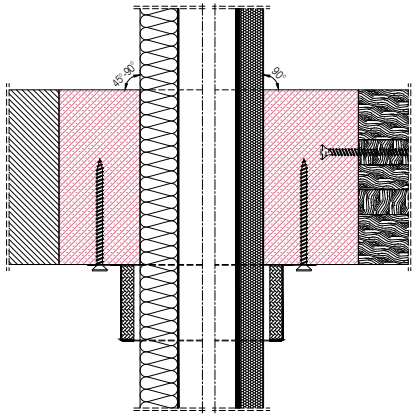
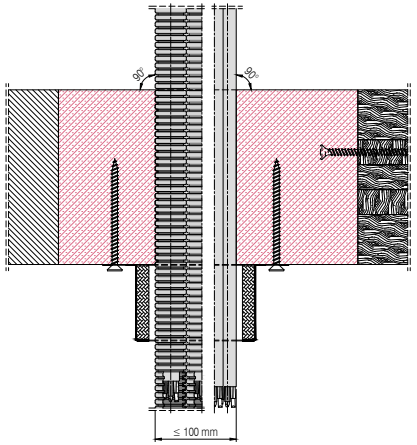


RORCOL AV60
for metal pipes

RORCOL AV60
for multi-layer composite pipes

14



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for bundles of electrical conduits with/without cables

RORCOL AV60 ≤ DN110
for cable bundles

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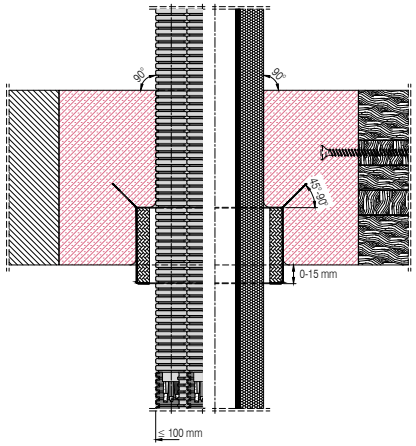
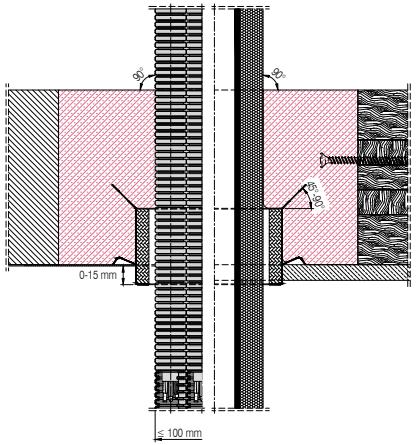


The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles and bundles of electrical conduits with/without cables

RORCOL AV60
for multi-layer composite pipes and metal pipes

16 Installation with permanent formwork



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles and bundles of electrical conduits with/without cables

RORCOL AV60
for multi-layer composite pipes and metal pipes

Rigid floors/ceilings & cross-laminated timber floors/ceilings

Mixed penetration seal with pipe collars
Rigid floors/ceilings & cross laminated timber floors/ceilings, thickness ≥ 140 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]				Fire resist-ance
					with-out	PE	EL	AK	
RORCOL AV60	Multi-layer composite pipes according to "Permissible pipe types" table on page 24-25	Al-PE	4 pipes	≤ 17	–	9-10	9	–	EI90
				≤ 21				≤ 30[1]	
			1 pipe	≤ 26		9-10	9-13		
				≤ 33		–	9-25	≤ 40	
				≤ 42		–	9-32	≤ 50	
				≤ 52		–	13-32	≤ 60	
				≤ 63		–	13-43	≤ 50	
	Metal pipes	Copper / steel	1 pipe	≤ 16	–	–	6-25	≥ 20	
				≤ 35			13		
				≤ 42			–		
				≤ 54[2]			–	≥ 30	
		Steel		≤ 76			32		

[1] Exclusively for single penetrations (1 pipe per collar)
[2] Exclusively rigid floors/ceilings

Cable penetration seals
Rigid walls, thickness ≥ 150 mm

Type	Max. DN	Standard / product	Elements fed through	Outer diameter of bundle [mm]	Outer diameter of electrical conduits [mm]	Cable dimensions [mm]	Fire resist-ance
RORCOL AV60	110	EN 61386-22	Bundle of electrical conduits	≤ 100	≤ 40	≤ 21	EI90
		All types of sheathed cables	Cable bundle		–		

Installation details & application areas

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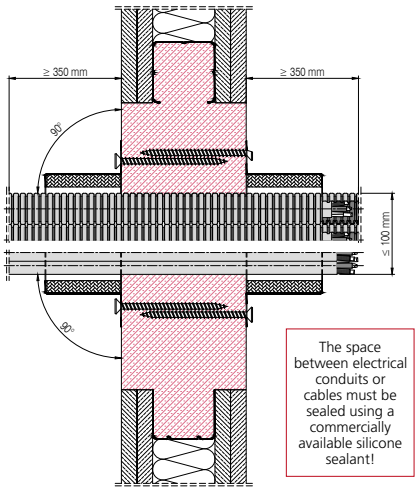
RORCOL AV60 ≤ DN110
for bundles of electrical conduits with/without cables



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles ≤ Ø100

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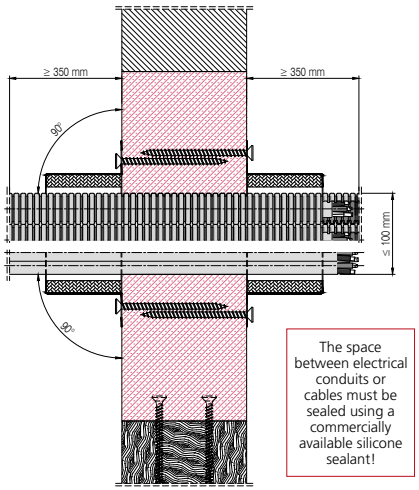
RORCOL AV60 ≤ DN110
for bundles of electrical conduits with/without cables



The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles

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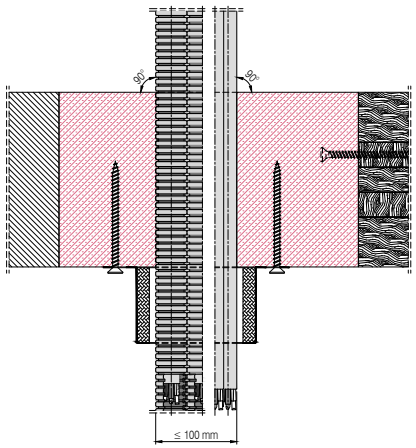

The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for bundles of electrical conduits with/without cables

RORCOL AV60 ≤ DN110
for cable bundles

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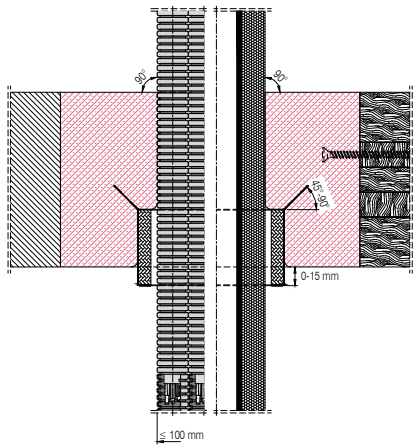


The space between electrical conduits or cables must be sealed using a commercially available silicone sealant!

RORCOL AV60 ≤ DN110
for cable bundles and bundles of electrical conduits with/without cables

RORCOL AV60
for multi-layer composite pipes and metal pipes

Electrics and air conditioning

Cable penetration seals with pipe collars
Walls, thickness ≥ 100 mm & floors/ceilings, thickness ≥ 140 mm

Type	Max. DN	Standard / product	Elements fed through	Outer diameter of bundle [mm]	Outer diameter of electrical conduits [mm]	Cable dimensions [mm]	Fire resistance
RORCOL AV60	110	EN 61386-22	Bundle of electrical conduits	≤ 100	≤ 40	≤ 21	EI90
		All types of sheathed cables	Cable bundle		–		

Mixed penetration seal with pipe collars
Flexible walls & rigid walls, thickness ≥ 100 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]			Fire resistance
					Without	PE	EL	
RORCOL AV60	Metal pipes	Copper / steel	Multiple feedthrough	≤ 10	–	6	–	EI90
				≤ 16	–	10	–	
	Electrical conduit	EN 61386-22		≤ 25	1 pc. cable ≤ 3x1.5 mm²			
	Metal pipes	Copper / steel	Multiple feedthrough	≤ 8	–	4	–	EI90
				≤ 12	–	9	–	
	Cable	–		–	1 pc. cable ≤ 3x1.5 mm²			
	EN 1452-2	PVC-U		20	✓	–	–	

Mixed penetration seal with pipe collars
Rigid walls & cross-laminated timber walls, thickness ≥ 100 mm

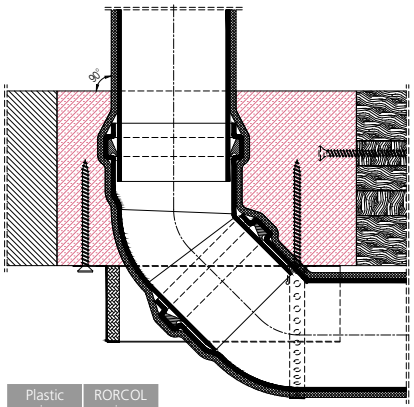
Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]			Fire resistance
					Without	PE	EL	
RORCOL AV60	Metal pipes	Copper / steel	Multiple feedthrough	≤ 18	–	–	9	EI90
				≤ 22	–	–	9	
	Electrical conduit	EN 61386-22		≤ 20	1 pc. cable ≤ 5x2.5 mm²			

Mixed penetration seal with pipe collars
Rigid floors/ceilings & cross laminated timber floors/ceilings, thickness ≥ 140 mm

Type	Standard / product	Material	Max. number of pipes per collar	Pipe diameter [mm]	Insulation [mm]			Fire resistance
					Without	PE	EL	
RORCOL AV60	Metal pipes	Copper / steel	Multiple feed-through	≤ 10	–	–	9	EI90
				≤ 16	–	–	9	
	Electrical conduit	EN 61386-22		≤ 25	1 pc. cable ≤ 5x2.5 mm²			

Installation details & application areas

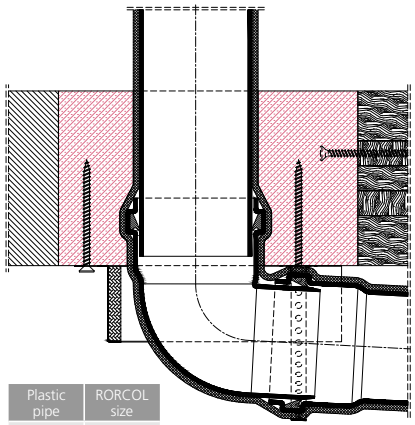
21 Pipe elbows 2x45°



Plastic pipe	RORCOL size
Ø 50	DN63
Ø 75	DN110
Ø 90	DN110
Ø 110	DN125
Ø 125	DN140
Ø 135	DN160

RORCOL V60 as U-application
for pipe elbows 2x45° with/without insulation

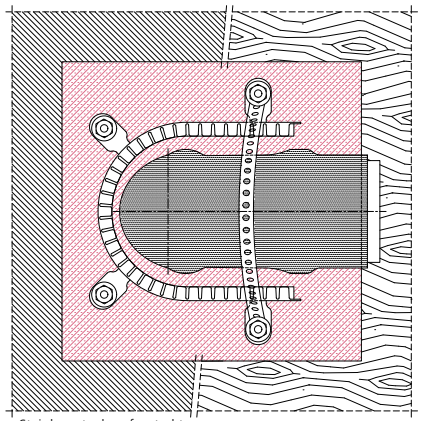
22 Pipe elbows 87°



Plastic pipe	RORCOL size
Ø 50	DN63
Ø 75	DN110
Ø 90	DN110
Ø 110	DN125
Ø 125	DN140
Ø 135	DN160

RORCOL V60 as U-application
for pipe elbows 87° with/without insulation

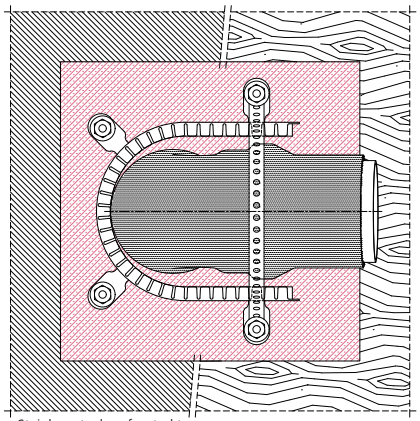
23 Pipe elbows 2x45°



Stainless steel perforated tape or
steel perforated tape with plastic coating
Width ≥ 17 mm, thickness ≥ 1 mm, hole diameter ≤ 7 mm

RORCOL V60 as U-application
for pipe elbows 2x45° with/without insulation

24 Pipe elbows 87°



Stainless steel perforated tape or
steel perforated tape with plastic coating
Width ≥ 17 mm, thickness ≥ 1 mm, hole diameter ≤ 7 mm

RORCOL V60 as U-application
for pipe elbows 87° with/without insulation

U-application

U-application
Rigid floors/ceilings & cross laminated timber floors/ceilings, thickness ≥ 140 mm

Type	Standard / product	Material	Pipe diameter [mm]	Insulation [mm]		Fire resist-ance
				Without	PE	
RORCOL V60	EN 1451-1	PP	≤ 110	–	5	EI90
	POLO-KAL NG		≤ 125	–	5	
	Valsir Silere		≤ 135	–	5	

Installation details & application areas

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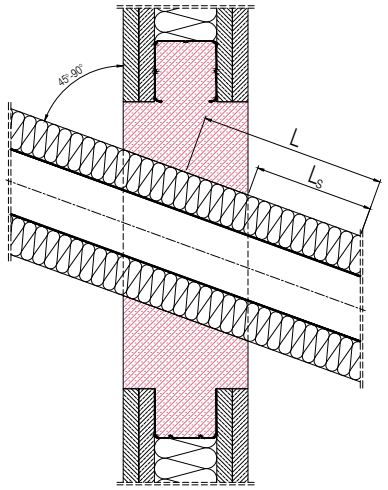

Pipe section
for metal pipes

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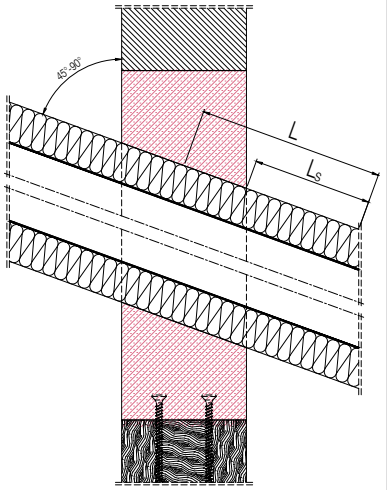
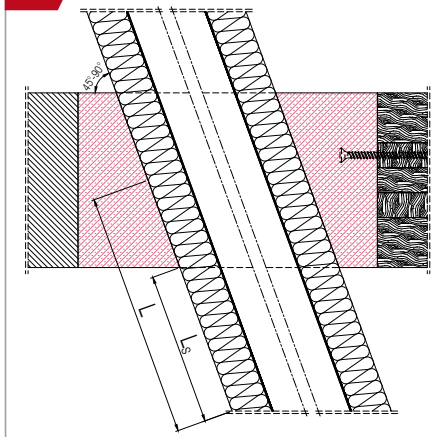


Pipe section
for metal pipes

27



Pipe section
for metal pipes

Required insulation lengths
Walls, thickness ≥ 100 mm

Pipe diameter [mm]	Insulation length [mm]	
	L	L_s
≤Ø54	≥500	≥450
>Ø54	≥1000	≥950

Required insulation lengths
Floors/ceilings, thickness ≥ 140 mm

Pipe diameter [mm]	Insulation length [mm]	
	L	L_s
≤Ø54	≥500	≥430
>Ø54	≥1000	≥930

Mixed penetration seal with pipe section

Mixed penetration seal
Flexible walls, thickness ≥ 100 mm

Type	Standard / product	Material	Pipe diameter [mm]	Insulation thickness [mm]	Insulation length [mm]		Insulation type	Fire resistance
					L	L_s		
FIRE PROOF	Metal pipes	Copper / steel	≤ 42	20-40	≥ 500	≥ 450	LS	EI90
		Steel	≤ 54					
			≤ 76	20-50	≥ 1000	≥ 950		

Mixed penetration seal
Rigid walls & cross-laminated timber walls, thickness ≥ 100 mm

Type	Standard / product	Material	Pipe diameter [mm]	Insulation thickness [mm]	Insulation length [mm]		Insulation type	Fire resistance
					L	L_s		
FIRE PROOF	Metal pipes	Copper / steel	≤ 42	20-40	≥ 500	≥ 450	LS	EI90
		Steel	≤ 54					
			≤ 76	20-50	≥ 1000	≥ 950		

Mixed penetration seal
Rigid floors/ceilings & cross laminated timber floors/ceilings, thickness ≥ 140 mm

Type	Standard / product	Material	Pipe diameter [mm]	Insulation thickness [mm]	Insulation length [mm]		Insulation type	Fire resistance
					L	L_s		
FIRE PROOF	Metal pipes	Copper / steel	≤ 42	20-40	≥ 500	≥ 430	LS	EI90
			≤ 54					
		Steel	≤ 76	20-50	≥ 1000	≥ 930		
Rockwool 800[1]	Metal pipes	Copper / steel	≤ 42	20-40	≥ 500	≥ 430	LS	EI90
		Steel	≤ 54					
			≤ 76	30-50	≥ 1000	≥ 930		

[1] Exclusively in cross-laminated timber floors/ceilings according to ETA-06/0138, ETA-09/0036 or ETA-14/0349

The performance of the aforementioned product corresponds to the declared performance(s). The manufacturer named above is solely responsible for producing the declaration of performance according to EU Regulation no. 305/2011.

Signed for the manufacturer and
in the name of the manufacturer by:

GOIDINGER
BAU+LEICHTBETON GMBH
Salzburger Straße 40 · A-6112 Wattens
Tel.: +43-5224-52 9 40 · Fax 57 4 62
info@goidinger.com · www.goidinger.com

Arno Goidinger, CEO,
GOIDINGER Bau- und Leichtbeton GmbH

Wattens, November 2023

TIROTECH® fire protective mortar

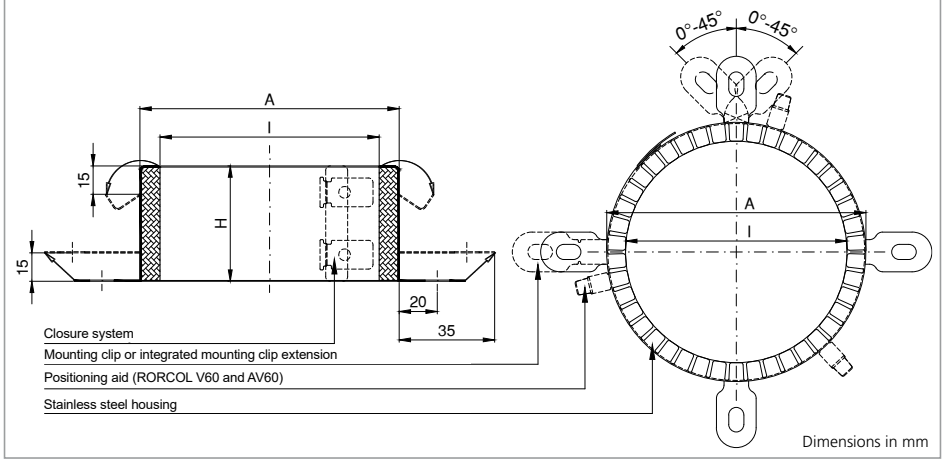
Advantages

- Easy to apply
- Rapid setting
- High adhesion
- Moisture-resistant

Match code	BSM/S30
Dry bulk density	450 kg/m³
Use category	X
Thermal conductivity	0.12 W/mK
Delivery form	30 litre bag – weight 10 kg
Water requirement	approx. 5 litres/bag
Mixing time	approx. 1 minute
Working temperature	min. 8 °C
Can be painted over	Yes
Storage	Store in a dry place. Protect from moisture. Can be stored for approx. 6 months

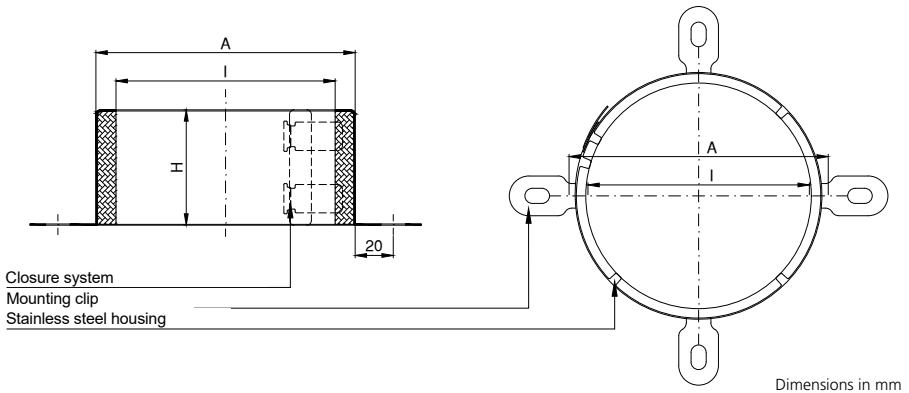
Installation video for mixed penetration seal TIROTECH®

Pipe collar RORCOL V30 - V60 - AV60



Length group	Field of application	Size	Installation depth [H] [mm]	Outer diameter [A] [mm]	Inner diameter [I] [mm]	Number of mounting clips
V30	For plastic pipes	DN40	31	57	46	3
		DN56		74	62	
		DN63		86	70	
		DN80		103	86	4
		DN100		127	105	
		DN110		142	119	
		DN125		161	133	
		DN140		178	146	
V60	For plastic pipes, extended field of application	DN56	61	74	62	3
		DN63		86	70	
		DN80		103	86	4
		DN100		127	105	
		DN110		142	119	
		DN125		161	133	
		DN140		178	146	
		DN160		201	168	5
		DN180		219	187	6
		DN200		246	209	
		DN250		303	261	8
AV60	For multi-layer composite pipes, cables and metal pipes	DN40	61	58	45	3
		DN56		74	60	
		DN63		86	73	
		DN80		103	85	4
		DN100		126	107	
		DN110		138	120	
		DN125		158	135	
		DN140		177	150	
		DN160		197	171	5
Metal housing material: stainless steel						

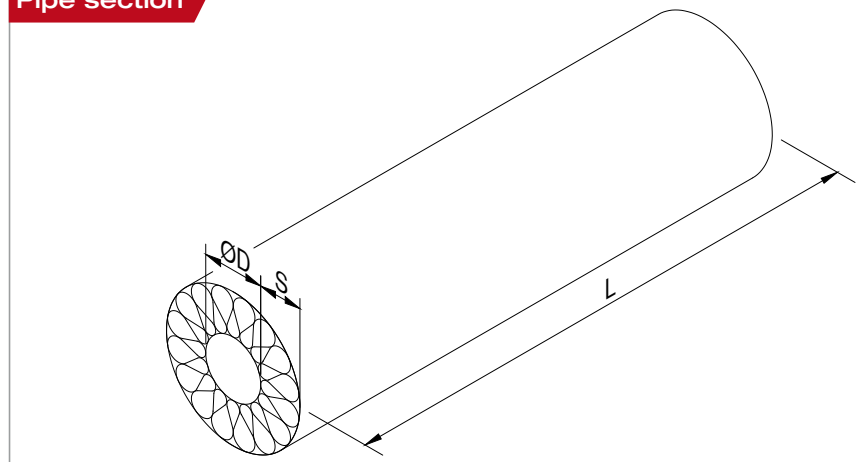
RORCOL M pipe collar



Dimensions in mm

Length group	Field of application	Size	Installation depth [H] [mm]	Outer diameter [A] [mm]	Inner diameter [I] [mm]	Number of mounting clips
M	For metal pipes	DN110	61	131	119	4
		DN125		145	134	
		DN140		161	150	
		DN160		186	170	5
		DN200		231	209	6
		DN250		280	258	8
Metal housing material: stainless steel						

Pipe section



FIRE PROOF pipe section

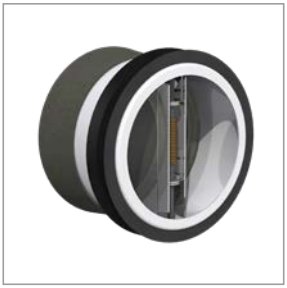
Field of application	Size	Outer pipe diameter ØD [mm]	Insulation thickness S [mm]	Length L [mm]
For metal pipes	FP/DN15/20	Ø15	20	1000
	FP/DN18/20	Ø18		
	FP/DN22/30	Ø22	30	
	FP/DN28/30	Ø28		
	FP/DN35/30	Ø35		
	FP/DN42/30	Ø42		
	FP/DN48/40	Ø48	40	
	FP/DN54/50	Ø54	50	
	FP/DN64/50	Ø64		
	FP/DN76/50	Ø76		

Rockwool 800 pipe section

Field of application	Outer pipe diameter ØD [mm]	Insulation thickness S [mm]	Length L [mm]
For metal pipes	Ø15	20	1000
	Ø18		
	Ø22	30	
	Ø28		
	Ø35		
	Ø42		
	Ø48	40	
	Ø54	50	
	Ø64		
	Ø76		

Fire protection

Fire dampers*
INLAP
EI120(ho, ve, i↔o)S



Fire damper air vents**
FSA
FLI-VE(ho+ve)90

Access panels*
FIREREV
EI120 / EI90 / EI60 / EI30

GOIDINGER
BAU+LEICHTBETON GESELLSCHAFT MBH

Salzburgerstraße 40
A-6112 Wattens
T: +43 5224 52940-0
F: +43 5224 57462
E: info@goidinger.com
I: www.goidinger.com

In collaboration with:

AIR FIRE TECH
Fire protection systems

Hanuschgasse 1 / Top 4A
A-2540 Bad Vöslau
T: +43 1 982 01 74-0
F: +43 1 982 01 74-930
E: office@airfiretech.at
I: www.airfiretech.at

CE 1139
GOIDINGER Bau- und Leichtbeton GmbH Salzburgerstraße 40 6112 Wattens, AUSTRIA
17
1139-CPR-0668/17
ETA-17/0586
EAD 350454-00-1104
DOP 2023/TIROTECH
Pipe, cable and/or mixed penetration seal "TIROTECH®" Use category Y_1
For further relevant properties, see ETA-17/0586

* Listed products are not subject to ETA regulation
** Classification and use according to national guidelines