

Made in Austria



AIR FIRE TECH

Fire protection systems

Fire protection in timber construction

Sanitary – Heating – Ventilation – Electrical



StoraEnso



Thoma



- *In-house research and development*
- *Practical solutions from planning through to execution*
 – developed with and for the customer
- *Legally secure solutions – for you and your customers*
- *Knowledge shared in targeted training sessions*
 – customisable training programme for your personal benefit

The pages labelled „Tested, classified, ETA applied for“ in this document contain information that is not yet included in the European Technical Assessments (ETA) and Declarations of Performance (DoP) for the respective products. This is required for use in Austria according to the Building Materials List. An application has been submitted to the Austrian Institute of Construction Engineering (OIB) to extend the existing ETA. The corresponding test and classification reports are available or are being prepared by the MA39 - Testing, Inspection and Certification Centre of the City of Vienna.

Contents

BASIC INFORMATION

Labelling of construction products	6
Fire protection	8
Smoke-tightness	12
Fire tests	16

WOOD - THE CONSTRUCTION MATERIAL OF THE FUTURE

Wood is becoming increasingly popular	20
Not all wood is the same	22
Milestones	24

PRODUCT DETAILS

AIR FIRE TECH System RORCOL	28
FIRE PROOF pipe section	32
TIROTECH® fire protective mortar	34
INLAP fire dampers	38
Fire damper air vents FLI-VE _(ho+ve) 90	
■ Fire damper air vent FSAeco	40
■ Fire damper air vent FSAeco-ST	40
■ PRODEC fire damper air vent	41

APPLICATION AREAS

Manufacturers' cross-laminated timber constructions	44
Concept 1 – Single penetration seals	54
Concept 2 – Mixed penetration seals	
■ Mixed penetration seal TIROTECH®	70
■ Combined penetration seal TIROTECH®	80
■ National penetration seal combination TIROTECH®	86
Concept 3 – Penetration seals in shaft walls	94

REFERENCES

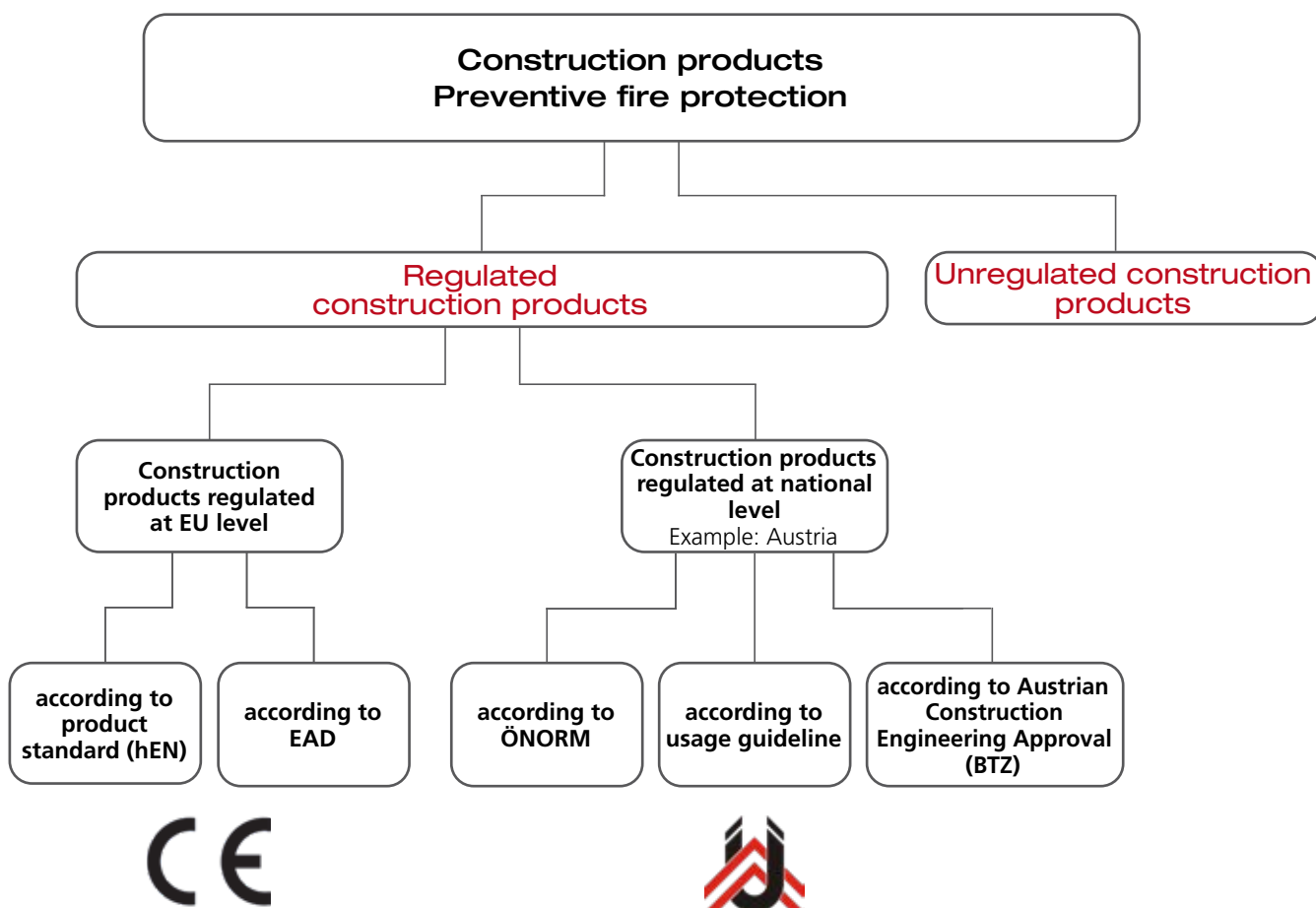
Other AIR FIRE TECH documentation	100
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Basic information

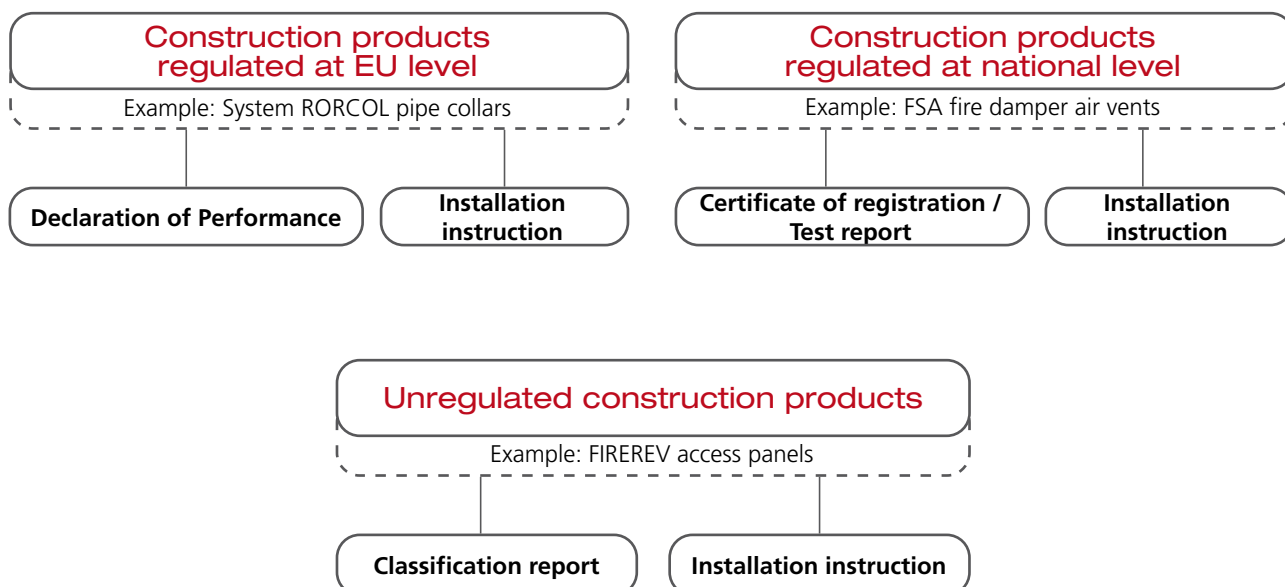




Labelling



Evidence required from the manufacturer



Requirements of drywall construction systems

Fire protection requirements

Drywall construction systems, including their components and materials as well as individual parts, must have the following fire protection properties:

- **Fire behaviour**

The fire behaviour class of construction materials/products is to be demonstrated by relevant product standards, by a reference to CWFT (Classified Without Further Testing) decisions by the European Commission or by classification reports according to EN 13501-1.

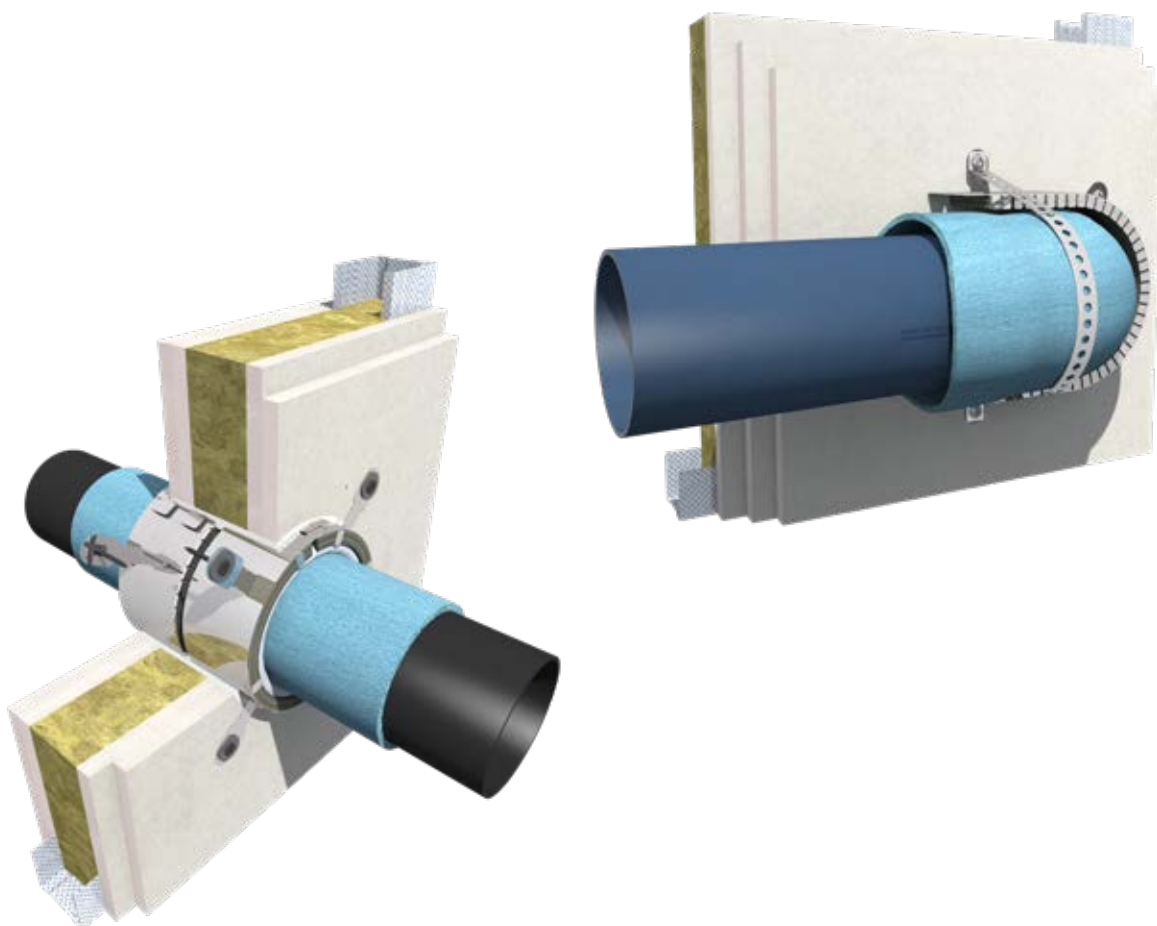
- **Fire resistance**

The systems used must comply with any applicable fire protection requirements. The fire resistance of drywall construction systems is to be demonstrated by a classification report according to EN 13501-2.

- **Connections, installations, feedthroughs**

The planned fire sections include connections to adjacent building elements as well as fire penetration seals on installations, fire dampers on ventilation systems, access panels, movement joints and the like. These must be in an appropriate fire resistance class for the building element in which they are installed and be classified for the same use.

Building elements adjacent to drywall construction systems that form fire sections must be in at least the same fire resistance class unless the fire protection provisions of building law permit a lower class.



Stud partition walls and wall structures

The designer of the installation system must select sanitary supporting structures and route supply and waste pipes in such a way that the structural stability of the relevant drywall construction system is not impaired:

- **Running installations inside building elements**

Building elements inside which installations are to be routed (e.g. shaft walls, walls between flats) should ideally have a single installation level. However, the installation cavity can also be dimensioned in line with the planned pipe cross-sections.

Single stud partition walls made from CW-50 profiles are only suitable for running installations in to a limited extent.

- **Additional cut-outs in tie bars**

Cut-outs in tie bars must be made using a hole saw, spherical cutter or punching tool, without cutting through the profile along its flanges.

The size of any additional cut-outs required in a tie bar is limited by the bar's height:

- CW-50 profile: additional openings of **max. 50 mm x 35 mm** at min. 500 mm distance apart
- CW-75 profile: additional openings of **max. 50 mm x 50 mm** at min. 500 mm distance apart or
one additional opening with a diameter of **max. 70 mm**
- CW-100 profile: additional openings of **max. 50 mm x 50 mm** at min. 500 mm distance apart or
one additional opening with a diameter of **max. 90 mm**

- In the case of pipes and cables that are to be run from the existing bare floor/ceiling into stud partition walls, for example, the additional openings in the connecting profile (U-shaped wall profile) made subsequently cannot be allowed to exceed the following maximum sizes:

- UW-50 profile: max. 40 mm x 350 mm
- UW-75 profile: max. 70 mm x 350 mm
- UW-100 profile: max. 90 mm x 350 mm

Openings must be at least 800 mm apart. No CW profile may be located in the area of these openings.

The processing guidelines issued by the relevant drywall construction system manufacturer must be followed.



PDF download:
Planning and Constructing Shaft Walls



You can find more information and installation details according to the processing guidelines in the current brochures published by Saint-Gobain Rigips Austria GmbH.

SMOKE-TIGHTNESS

Energy efficiency of building envelopes

Air- and wind-tightness

The terms “air-tightness” and “wind-tightness” must not be mixed up as they mean two fundamentally different things:

- A wind-tight building will protect the building elements from the effects of airflow inside the heat insulation. In other words, it is about preventing air from flowing into the insulation from outside, through the insulation and then out again elsewhere, which would impair the insulating effect.
- Air-tightness, by contrast, means preventing air from flowing through the building envelope from inside to outside and vice versa. In the winter, warm air from inside can escape and cold air from outside can flow in.

Both of these can reduce energy consumption if they are not addressed.

The existence of any national requirements governing air- and wind-tightness must be checked.

In Austria, for example:

The **envelope on new buildings must be designed to be air- and wind-tight**, with a maximum air exchange rate n_{50} of 3 h^{-1} (air is replaced 3 times in an hour) in buildings without a ventilation system or 1.5 h^{-1} (air is replaced 1.5 times in an hour) in buildings with a ventilation system.

Measurements are taken by means of a **blower door test**, for example.

- **Residential buildings**
In the case of residential buildings with one or two units (e.g. single-family, two-family, semi-detached or terraced houses), this value must be complied with for each house.
In the case of residential buildings with three or more units (e.g. multi-family houses or blocks of flats), this value must be complied with for each flat or accommodation unit.
The value must also be complied with for stairwells inside the air-conditioned building envelope, including the flats connected to them.
- **Non-residential buildings**
In the case of non-residential buildings (e.g. office blocks, educational establishments or hospitality venues), the requirement applies to each fire section.

n_{50} = air exchange rate at a differential pressure of 50 Pa

NOTE

The blower door test also calculates the smoke-tightness of residential and non-residential buildings.

Blower door test

The blower door test calculates the tightness and thus also the smoke-tightness of residential and non-residential buildings.



Typical draft points

- Passageways for pipes, cables, sockets
- Joints of construction materials
- Leakage from installation shafts
- Doors, windows, glass inserts

Measuring instrument

Viewing window

Blower door

Fan



Installing fire dampers

When installing fire dampers, a distinction can be made between three variants:

Installation with expansion compensation

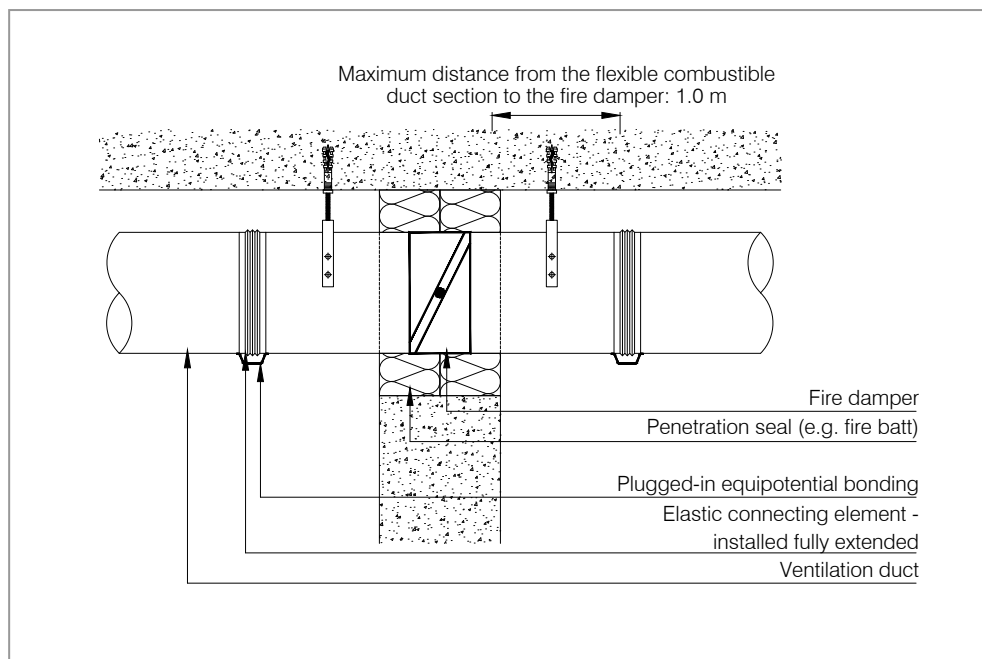
Fire dampers/fire and smoke control dampers may be mounted as follows:

- to rigid load-bearing walls/ceilings or
- to rigid non-load-bearing walls (e.g. aerated concrete) or
- to flexible (lightweight partition) walls, if corresponding mathematical proof for the supporting structure is available.

The prerequisite for this is that the forces arising in the event of fire due to thermal expansion or collapse of the adjoining air ducts are reduced by expansion compensation measures to such an extent that the position of the fire damper/fire and smoke control damper in relation to the component forming the fire compartment is not changed over the fire resistance period and the sealing effect of the penetration seals is not impaired.

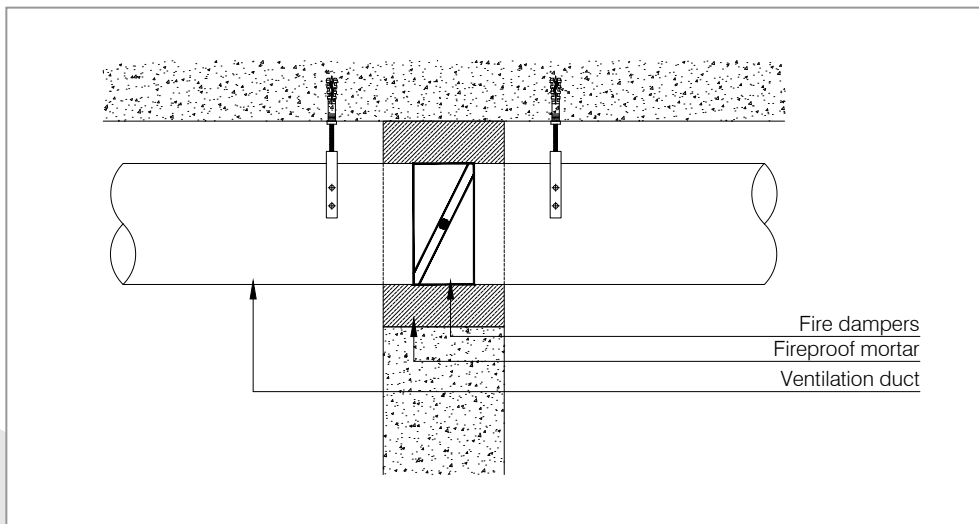
The use of flexible duct sections or elastic connecting elements is suitable for this without further provision of evidence.

When installed, the flexible section must be at least 1% of the connected duct length in the direction of thrust up to any other flexible duct section or elastic connecting element, but at least 80 mm. The flexible duct section must be installed fully extended. The expansion compensation measures must be positioned outside the range of movement of the closing element, but at a maximum distance of 1 m from the end of the damper.



Installation without expansion compensation – by cementing in

Fire dampers/fire and smoke control dampers are considered to be rigidly mounted if they are cemented into the entire surface of the reveal of a solid load-bearing wall or load-bearing floor/ceiling on all sides. Classified fire protective mortar optimised for shrinkage cracks must be used for this.

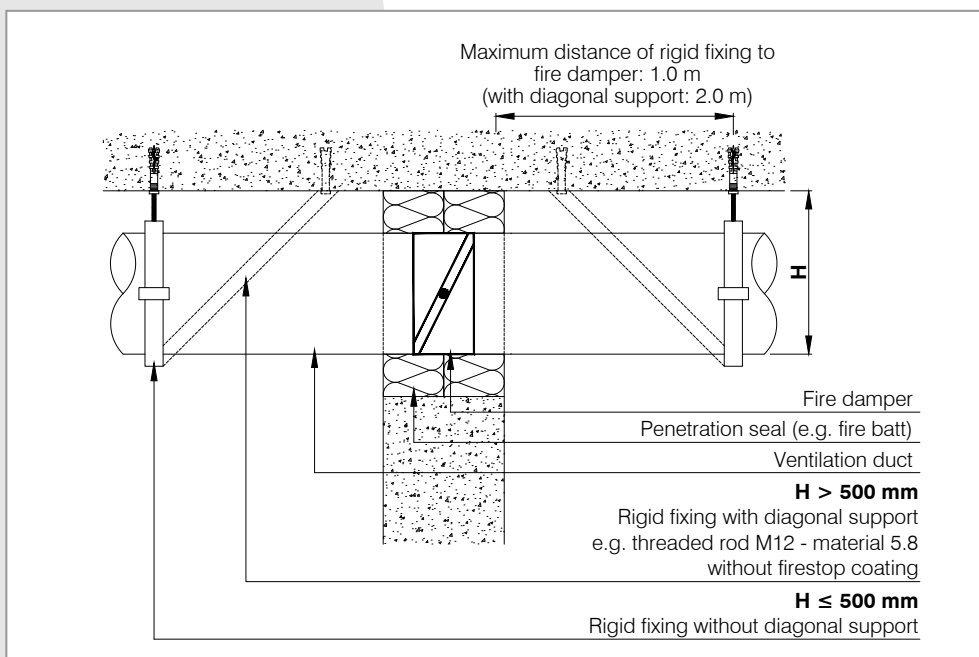


Installation without expansion compensation – for rigidly fixed air ducts

The air duct is deemed to be fixed with sufficient rigidity if it has been assessed with respect to fire protection by an accredited test centre or if its suitability has been verified by an expert.

The rigid fixing may be a maximum 1 m away from the damper in the case of fixings without diagonal supports (maximum 2 m with diagonal supports).

If air ducts are routed vertically in shafts with non-load-bearing shaft walls, they must be fixed to the load-bearing floor/ceiling with a sufficiently rigid fixing structure on every storey at least.



COMBINED PENETRATION SEAL TIROTECH® EN 15882-5

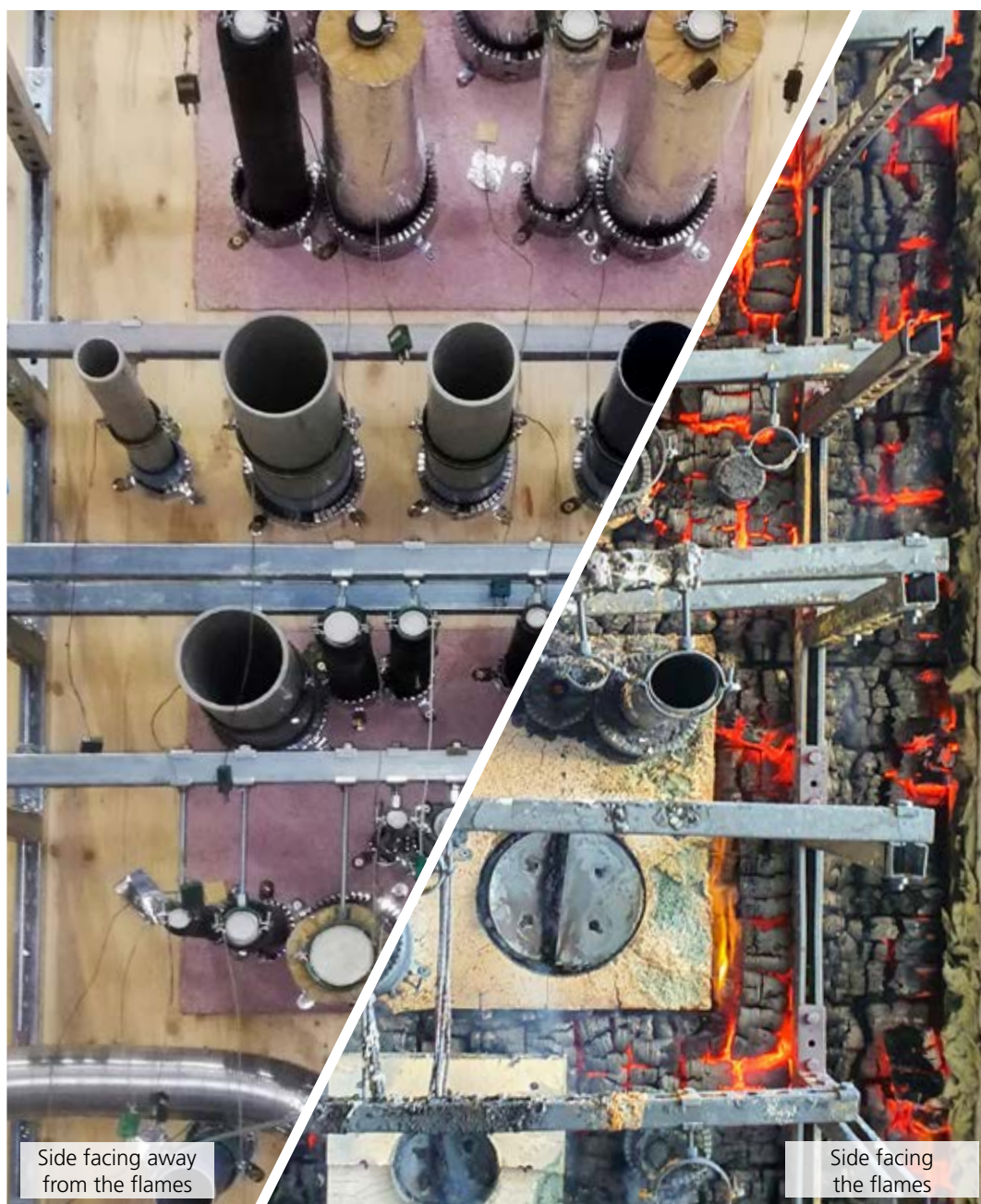
Extended application of results from fire resistance tests for service installations

Part 5: Extended mixed (combined) penetration seals – October 2021

Up until 15 March 2022, the installation of fire dampers in mixed penetration seals was not regulated throughout Europe. In Austria, these installation situations were solved via the mixed penetration seal according to ÖNORM H 6031.

EN 15882-5 now provides specifications for this. The permissible application areas can now be clearly defined for installing fire dampers in mixed penetration seals.

Our INLAP fire dampers have been extensively tested in combination with the TIROTECH® mixed penetration seal in cross-laminated timber walls and floors.



Wood – the construction material of the future





Wood has always been one of the most important construction materials. The very first dwellings were built from wooden structures and mud bricks. Thousands of years later, these are no longer tree trunks, but solid, prefabricated building elements made of cross-laminated timber. In other words, solid wood panels consisting of several layers of boards stacked flat onto each other and glued in a crosswise arrangement.

There are many different reasons for carrying out a building project using solid wood construction. The high degree of prefabrication reduces the construction time on the building site while also significantly increasing the quality of the workmanship. This is prompting more and more planners and architects to take a closer look at solid wood construction. Building with cross-laminated timber elements puts the focus on planning, particularly when it comes to fire protection. This is because the routing of the building service installations and the associated penetration sealing measures need to be carefully planned in advance.

In recent years, there have been a number of innovations in the building sector. Air Fire Tech has developed new concepts for solutions as part of a research project.

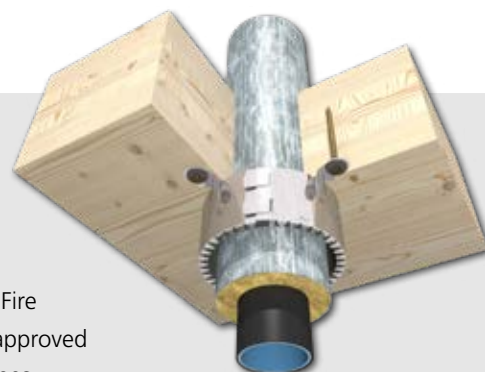


The 3 concepts

1

Single penetration seals

As part of the research project mentioned, tests were carried out on a large number of new single penetration seals for combustible and non-combustible pipes in wall and floor/ceiling elements made of cross-laminated timber. For sealing off ventilation ducts, tests were carried out with the Air Fire Tech fire damper INLAP according to EN 15650 and also with nationally approved Air Fire Tech fire damper air vents FLI-VE90 according to OIB usage guidelines.



For more information, see page 54 →

2

Mixed penetration seals

When pipes and cables are routed through a common opening and sealed off with a penetration seal, this is referred to as a mixed penetration seal. An combined penetration seal is when air ducts with fire dampers are also routed through a mixed penetration seal. The new TIROTECH® fire protective mortar is impressive not only because of its light weight and rapid setting, but also because it is easy and quick to apply without the need for complex reveal construction. In practice this means, for example, that even uneven reveal surfaces cut out with power saws in openings can be filled with TIROTECH® fire protective mortar. For structural reasons, steel nails or chipboard screws must be placed in the openings as reinforcement.



For more information, see page 70 →

3

Penetration seals in shaft walls – Shaft type A

In addition to single penetration seals and mixed penetration seals, there is another construction method which has been tried and tested for decades and is a natural choice for timber construction: shaft type A¹, i.e. the plasterboard stud partition wall lined on one face. Shaft type A is a way of bypassing the penetration sealing of pipes and cables in cross-laminated timber elements. The penetration sealing is carried out in the shaft wall.



For more information, see page 94 →

Cross-laminated timber (CLT) is the term used to describe timber construction elements that consist of at least three layers of boards that have been glued together in a crosswise arrangement. This makes it possible to produce elements with large dimensions, which are suitable for constructing load-bearing walls and floors. The high degree of prefabrication at the factory enables quick workflows on the construction site, which means that building shells can be erected in a very short time without introducing any additional moisture into the structure. The crosswise arrangement boasts particularly high dimensional stability and enables load transmission in both longitudinal and transverse directions.

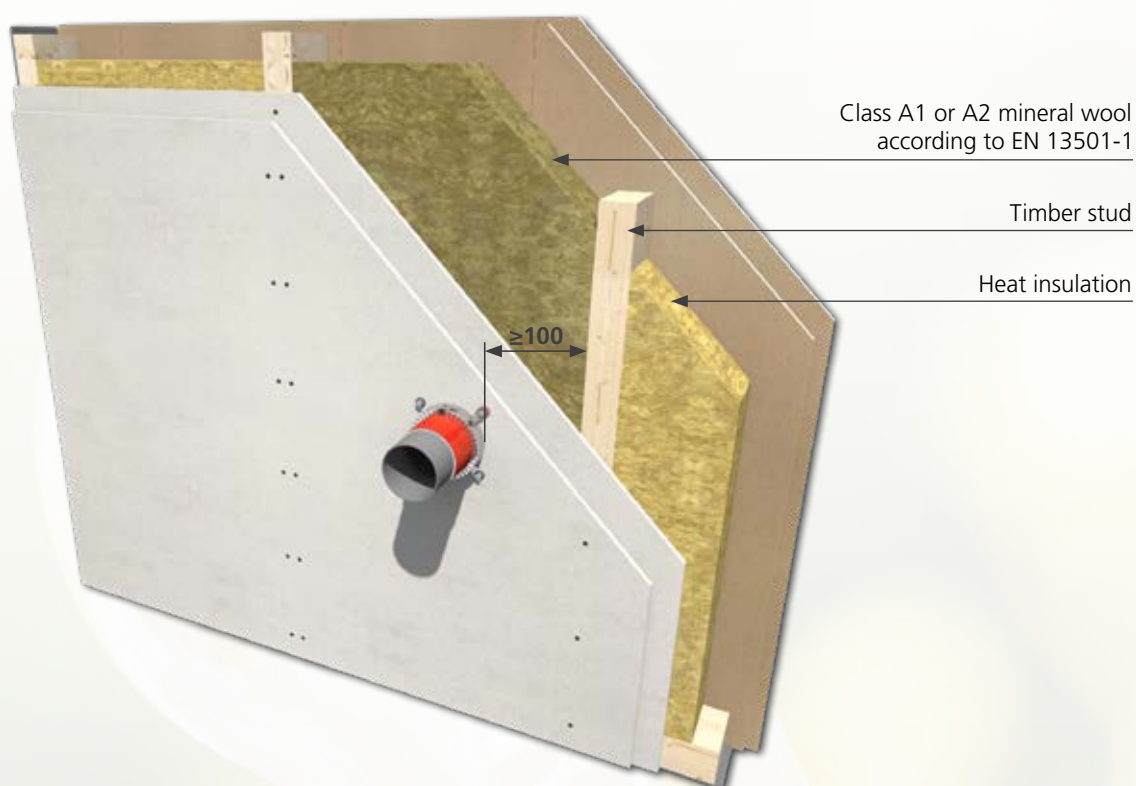
As with conventional standard walls made of brick and concrete, when working with cross-laminated timber walls and floors, sometimes building service installations need to be routed through the element. If there is a fire resistance requirement for the walls or floors (EI60, EI90 etc.), this penetration must be sealed off with respect to fire protection. The fire resistance of the penetrated separating element must be restored. The penetration sealing must correspond to the fire resistance of the wall or floor/ceiling.

Every manufacturer of cross-laminated timber has its own European Technical Assessment (ETA) for its timber structures. **According to EN 1366-3:2021 point 7.2.1**, these are considered to be **specific supporting constructions**. Therefore, single and mixed penetration seals must be tested with the cross laminated timber construction of the relevant manufacturer within the system.

Penetration seals must be tested with the cross-laminated timber construction of the relevant manufacturer both within the system and separately!

Flexible walls with timber studs

According to EN 1366-3, the test results obtained with the standard flexible wall constructions also apply to flexible walls with timber studs provided the number of lined layers does not differ. The distance between the penetration seal and the timber studs must be at least 100 mm. This must be filled with class A1 or A2 insulation according to EN 13501-1 (mineral wool).



You can find details of how to install RORCOL pipe collars and a list of tested pipe brands in our "Installation Instructions and Declaration of Performance AIR FIRE TECH System RORCOL" according to European Technical Assessment ETA-13/0758.



PDF download:
RORCOL Installation Instructions



In-house fire testing with cross-laminated timber

First fire test with
FLI-VE fire damper air vents in
cross-laminated timber



First fire test with INLAP fire dampers and RORCOL pipe collars in cross-laminated timber



Expansion of the series of tests with fire dampers and pipe collars in walls and floors made of cross-laminated timber

2010

First large-scale fire test with cross-laminated timber



1st edition of the planning brochure
"Brandabschottungen im Holzbau"
[Fire-resistant sealing in timber con-
struction] by Holzforschung Austria

AIR FIRE TECH in collaboration with:



StoraEnso



Thoma



2019

First fire test with TIROTECH® protective mortar in cross-laminated timber

2022

1st edition of the brochure
"Fire protection in
timber construction"



2020



2016

First fire test with access panel in
cross-laminated timber walls

2021

First fire test with
pipe section in cross-laminated timber



Product details

SEARCH

<http://www.sagepub.com/journalsPermissions.nav>
 McGraw-Hill
[illegible]

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LOADING...



0012

AIR FIRE TECH SYSTEM RORCOL EI90

according to ETA-13/0758

RORCOL V30



- Installation depth: 31 mm
- For sewage pipes up to Ø135 mm

RORCOL V60



- Installation depth: 61 mm
- For sewage pipes and thick-walled plastic pipes up to Ø250 mm
- Extended field of application

RORCOL AV60



- Installation depth: 61 mm
- For multi-layer composite pipes up to Ø63 mm
- For metal pipes up to Ø76 mm
- For electrical conduits up to Ø50 mm with or without cables up to Ø21 mm

Functional principle

RORCOL V30 and V60 pipe collars

The intumescent material inside the stainless steel housing begins to expand at temperatures over 150°C, while plastic pipes soften and melt away as they are exposed to the fire. The cross-section thus exposed is safely sealed up by the pipe collar and heat transfer to the side facing away from the flames is restricted.

RORCOL AV60 pipe collars

The intumescent material begins to expand at temperatures over 190°C, restricting heat transfer to the side facing away from the flames in the case of aluminium composite pipes, metal pipes and cables.

BFM/K310 firestop sealant



- For sealing the annular and residual gap between pipe and separating element



PDF download:
System RORCOL brochure



For more information on the System RORCOL, as well as a comprehensive overview of the permissible application areas, please see our brochure "Penetration seals for pipes and electric cables".

Product description

RORCOL pipe collars are used to seal off plastic pipes, multi-layer composite pipes, metal pipes, electrical conduits and cables. They consist of a stainless steel housing containing an intumescent material. The housings on the RORCOL V30/V60 and RORCOL AV60 are serrated in a different way, allowing them to be distinguished from each other and used in the appropriate field of application. The mounting clips, which can be twisted up to 45° if space is tight, are used to fix the pipe collar in place. They can be extended by 15 mm using the integrated mounting lug extension. RORCOL pipe collars are closed using a closure system, which is also used to fix them in place if they are installed as Omega-application. When formwork is being used in floors, the RORCOL V60 and RORCOL AV60 pipe collars are made easier to position by folding out the integrated positioning aids.

Integrated mounting lug extension

- Optional 15 mm extension of the mounting lugs to bridge larger annular gaps



Omega-fixing

Perforated flaps for installation as an Omega application:

- RORCOL V60 – up to DN110
- RORCOL AV60 – up to DN80



Distinguishing feature

- Different serrations on RORCOL V30/V60 and RORCOL AV60 pipe collars
- Makes it easier to tell the difference even after installation



Integrated positioning aid

- Makes it easier to insert the pipe collar in formwork



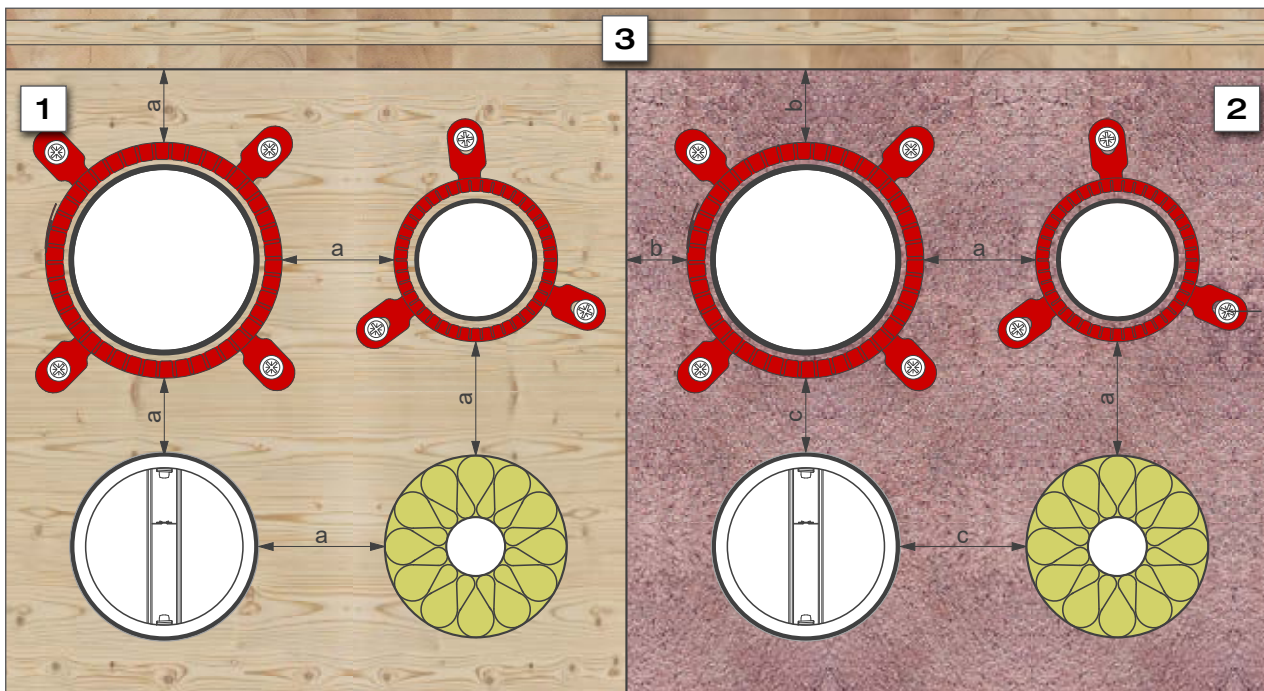
Twistable mounting lugs

- For fitting into tight spaces



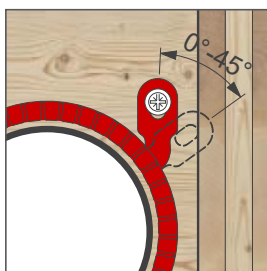
CE 1139
Air Fire Tech Brandschutzsysteme GmbH Stranzenberggasse 7b/1/2 1130 Vienna, AUSTRIA
13
1139-CPR-0523/13
ETA-13/0758
EAD 350454-00-1104
DOP 2020/RORCOL
Pipe penetration seal "Air Fire Tech System RORCOL" Use category Y ₁
For other relevant characteristics, see ETA-13/0758

Working clearances



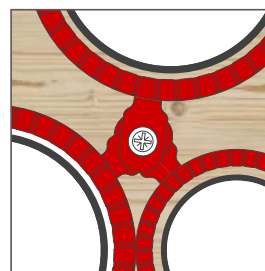
Legend	
1	Cross laminated timber wall or floor
2	Mixed penetration seal TIROTECH®
3	Adjacent separating element
a	Minimum distance 0 mm
b	Minimum distance 30 mm
c	Minimum distance 50 mm

Twistable mounting lugs



Up to four mounting lugs can be rotated at any angle between 0° and 45°

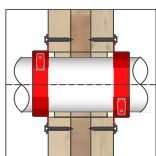
Common screw fixing



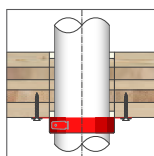
Up to three mounting lugs of three adjacent pipe collars can be fixed with just one screw fixing

Application areas

Single penetration seals

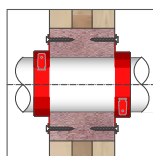


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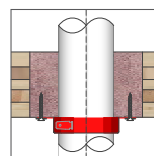


Seite 61

Mixed penetration seals



Seite 71



Seite 75

Article numbers

Article number – RORCOL V30

Art. no.	Type	Nominal size
9504040	BRM/V30/DN40	16–40 mm
9504056	BRM/V30/DN50–56	50–56 mm
9504063	BRM/V30/DN59–63	59–63 mm
9504080	BRM/V30/DN75–80	75–80 mm
9504100	BRM/V30/DN90–100	90–100 mm
9504110	BRM/V30/DN110	110 mm
9504125	BRM/V30/DN125	125 mm
9504140	BRM/V30/DN140	140 mm

Article number – RORCOL V60

Art. no.	Type	Nominal size
9503056	BRM/V60/DN50–56	50–56 mm
9503063	BRM/V60/DN59–63	59–63 mm
9503080	BRM/V60/DN75–80	75–80 mm
9503100	BRM/V60/DN90–100	90–100 mm
9503110	BRM/V60/DN110	110 mm
9503125	BRM/V60/DN125	125 mm
9503140	BRM/V60/DN135–140	135–140 mm
9503160	BRM/V60/DN160	160 mm
9503180	BRM/V60/DN180	180 mm
9503200	BRM/V60/DN200	200 mm
9503250	BRM/V60/DN250	250 mm

Article number – RORCOL AV60

Art. no.	Type	Nominal size
9505040	BRM/AV60/DN16–40	16–40 mm
9505056	BRM/AV60/DN50–56	50–56 mm
9505063	BRM/AV60/DN59–63	59–63 mm
9505080	BRM/AV60/DN75–80	75–80 mm
9505110	BRM/AV60/DN110	110 mm
9505125	BRM/AV60/DN125	125 mm
9505140	BRM/AV60/DN140	140 mm
9505160	BRM/AV60/DN160	160 mm

according to ETA-17/0734

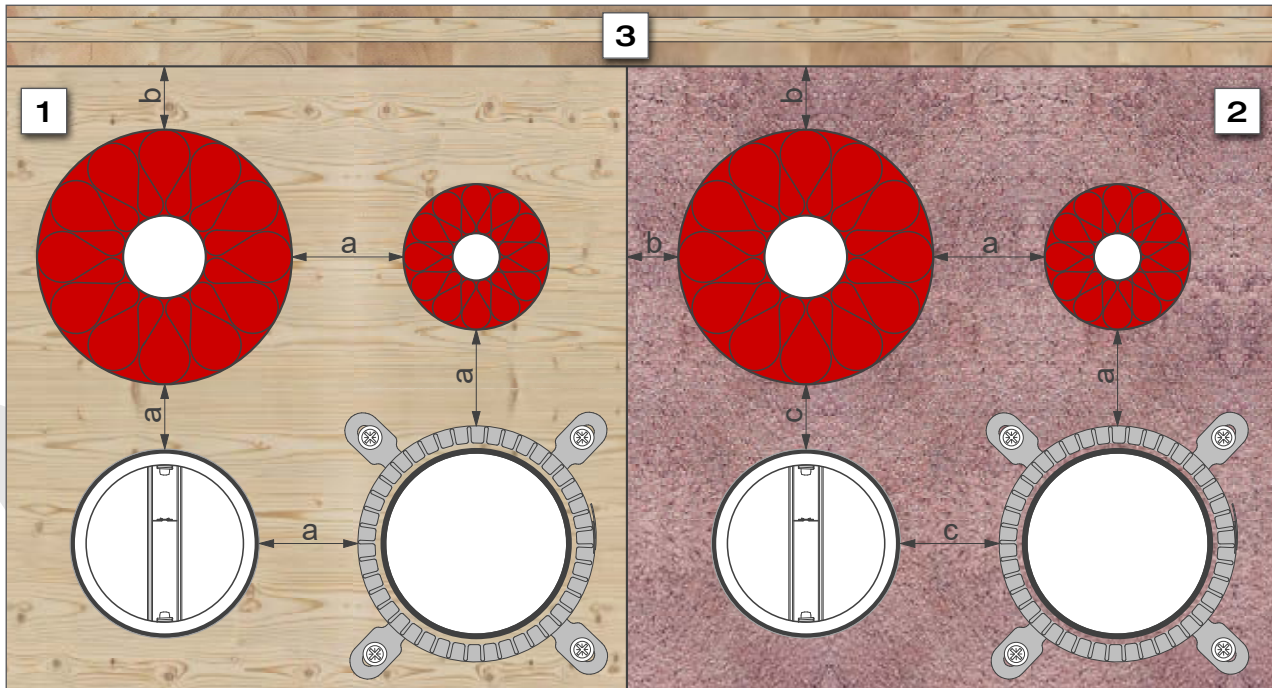
Foil overlap

-
- A roll of Austroflex fire protection material. The outer layer is yellow, and the inner layer is grey with 'AIR FIRE TECH' and 'Brandschutzsysteme' printed on it. A circular inset shows a cross-section of the material.

CE

Art. no.	Type	Outer pipe diameter	Insulation thickness
9506152	FP/DN15/20	Ø15 mm	20 mm
9506182	FP/DN18/20	Ø18 mm	20 mm
9506223	FP/DN22/30	Ø22 mm	30 mm
9506283	FP/DN28/30	Ø28 mm	30 mm
9506353	FP/DN35/30	Ø35 mm	30 mm
9506423	FP/DN42/30	Ø42 mm	30 mm
9506422	FP/DN42/40	Ø42 mm	40 mm
9506484	FP/DN48/40	Ø48 mm	40 mm
9506545	FP/DN54/50	Ø54 mm	50 mm
9506645	FP/DN64/50	Ø64 mm	50 mm
9506765	FP/DN76/50	Ø76 mm	50 mm

Working clearances

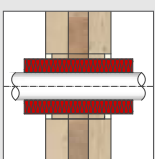


Legend

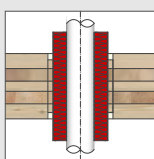
- | | |
|---|--------------------------------------|
| 1 | Cross laminated timber wall or floor |
| 2 | Mixed penetration seal TIROTECH® |
| 3 | Adjacent separating element |
| a | Minimum distance 0 mm |
| b | Minimum distance 30 mm |
| c | Minimum distance 50 mm |

Application areas

Single penetration seals

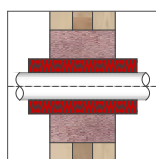


Seite 57

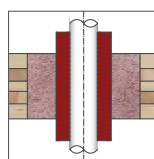


Seite 63

Mixed penetration seals



Seite 73



Seite 77

Product description

TIROTECH® fire protective mortar is a lime-cement bound lightweight mortar with polystyrene aggregates. The resulting very low dry bulk density facilitates transport and application.

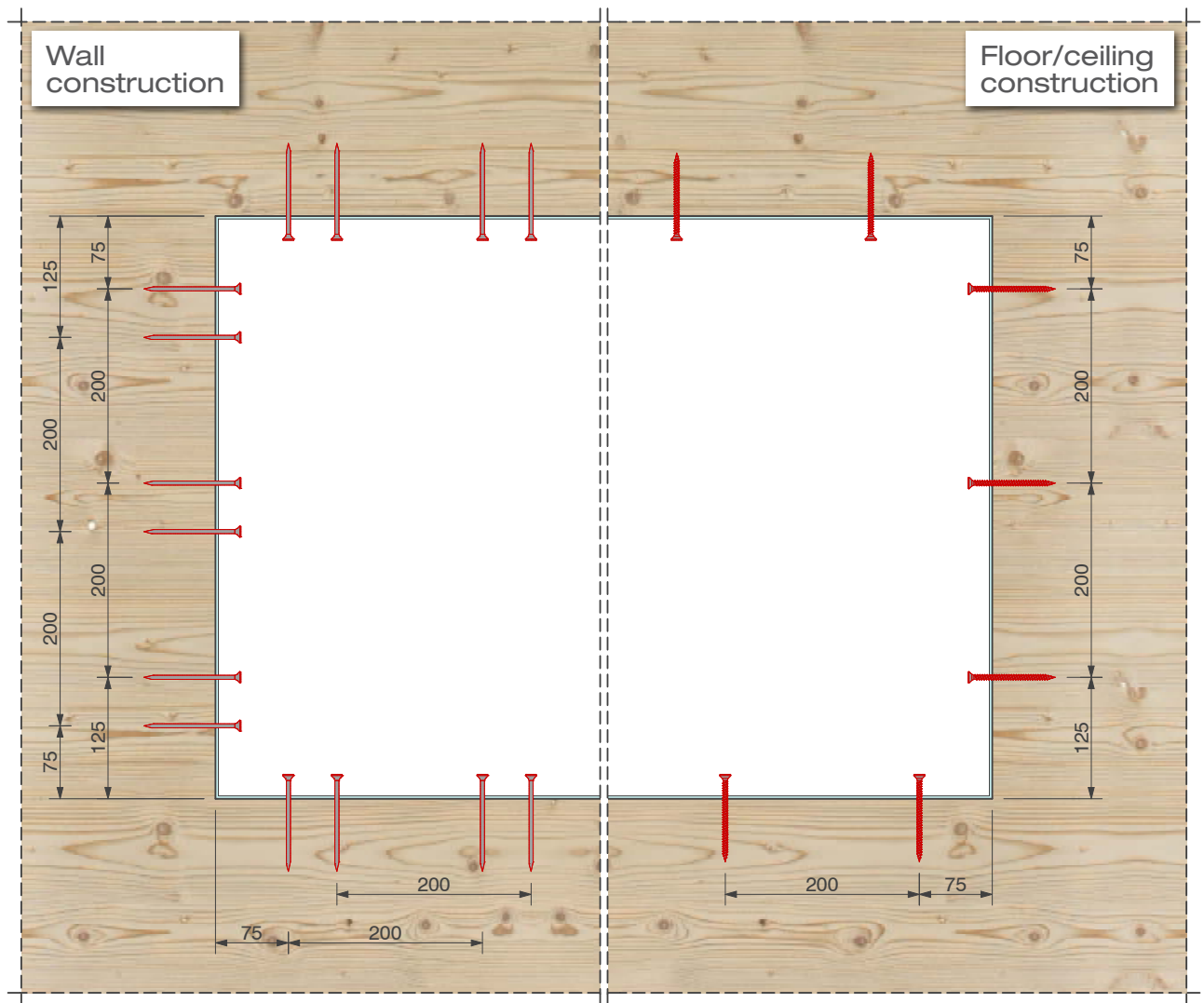
Properties

TIROTECH® - Fire protective mortar			
	Flexible walls	Rigid walls	Floors
	Thickness ≥ 100 mm	Thickness ≥ 100 mm	Thickness ≥ 140 mm
Maximum penetration seal size	1000x600 mm	1200x1000 mm	1200x800 mm or 820x8200 mm
Minimum mortar thickness	100 mm		140 mm
Dry bulk density	450 kg/m ³		
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		

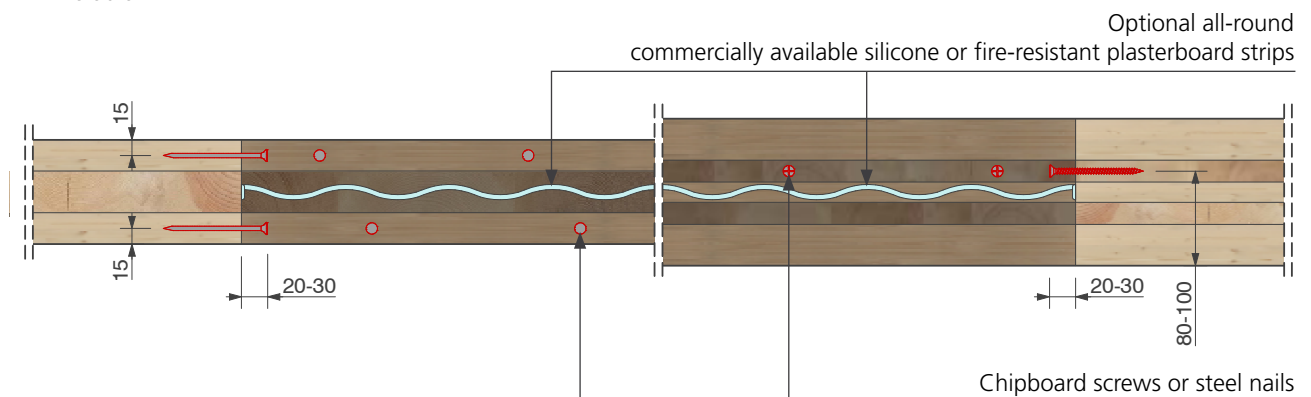


Application

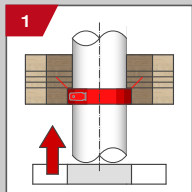
Before applying the TIROTECH® fire protective mortar, the pipe and/or cable must be checked with regard to the Declaration of Performance (DoP). The reveal of the recess must be solid, dry and free from any dust or grease. Due to the light weight and the consistency of the fire protective mortar, roughly cut EPS or XPS insulation boards, for example, can be used for the formwork. There is no need for any complex fixing of the formwork. It is possible to use fire-resistant plasterboards (thickness ≥ 15 mm) or steel sheets (thickness ≥ 1 mm) as permanent formwork. When installing in cross-laminated timber constructions, steel nails or chipboard screws must be placed in the openings as reinforcement.



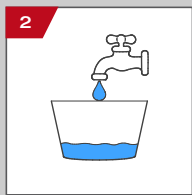
Dimensions in mm



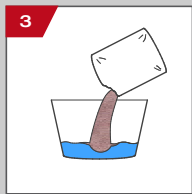
Installation with flush-mounted pipe collar



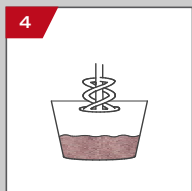
1 Attach formwork
(e.g. EPS insulation board)
Insert pipe collar



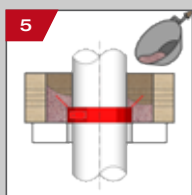
2 Prepare mortar trough (min. 50 litres)
Fill with clean water,
approx. 5 litres / bag



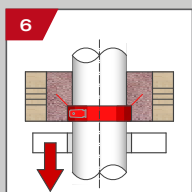
3 Add total bag contents of
TIROTECH® - Fire protective mortar



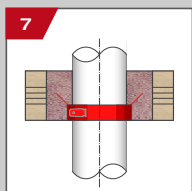
4 Mix with stirrer



5 Apply immediately after mixing

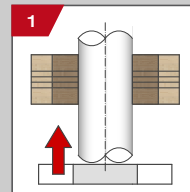


6 Remove formwork after setting

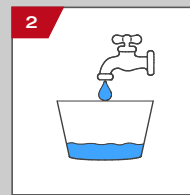


7 **No additional fixing of the flush-mounted pipe collar required**

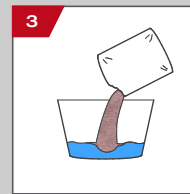
Installation with surface-mounted pipe collar



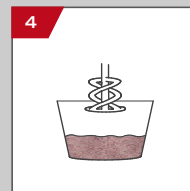
1 Attach formwork
(e.g. EPS insulation board)



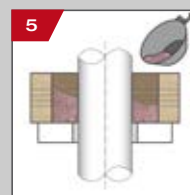
2 Prepare mortar trough (min. 50 litres)
Fill with clean water,
approx. 5 litres / bag



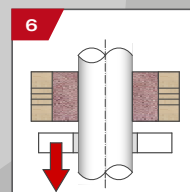
3 Add total bag contents of
TIROTECH® - Fire protective mortar



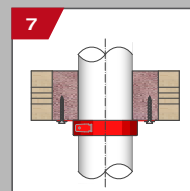
4 Mix with stirrer



5 Apply immediately after mixing

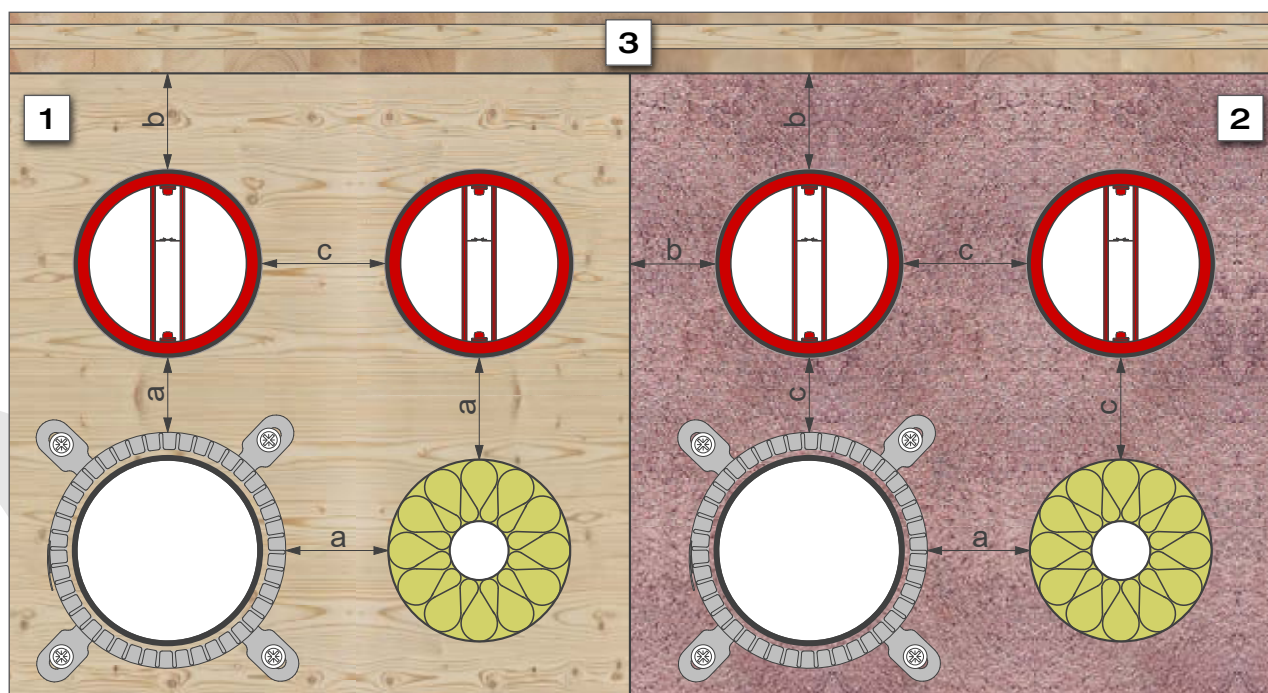


6 Remove formwork after setting



7 **Install pipe collar**

Working clearances

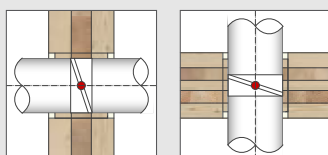


Legend

- | | |
|---|--------------------------------------|
| 1 | Cross laminated timber wall or floor |
| 2 | Mixed penetration seal TIROTECH® |
| 3 | Adjacent separating element |
| a | Minimum distance 0 mm |
| b | Minimum distance 30 mm |
| c | Minimum distance 50 mm |

Application areas

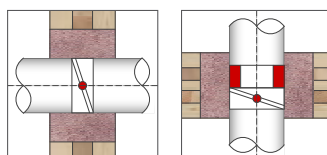
Single penetration seals



Page 60

Page 66

Combined penetration seals



Page 84

Page 85



PRODEC

Also suitable for plastic air ducts!

Free cross-section

- Simple cleaning of the air duct (e.g. using a rotating brush)

Extensive range of applications

- Structure-borne sound insulation up to 5 mm
- Insulation made of synthetic rubber up to 19 mm
- For air ducts made from spiral ducts and air ducts made of plastic



Also suitable for insulated air ducts



BFBL
Fire protection sealing tape

NOTE

Due to the design and method of operation of FLI-VE fire damper air vents, regular check testing is not required for the applications specified in ÖNORM H 6027.

Article number		
Art. no.	Match code	Nominal size
9547080	PDC/DN80	80 mm
9547100	PDC/DN100	100 mm
9547125	PDC/DN125	125 mm
9547160	PDC/DN160	160 mm
9900645	BFBL645	3×2,15 m
9902150	BFBL2150	10×2,15 m

Application areas





HASSLACHER
NORICA TIMBER

From **wood** to **wonders**.

HASSLACHER Holding GmbH

HASSLACHER CROSS LAMINATED TIMBER
according to ETA-12/0281

THEURL
AUSTRIAN PREMIUM TIMBER®

Brüder Theurl GmbH

CLTPLUS according to ETA-20/0843

binderholz ■

Binderholz Bausysteme GmbH

Binderholz Brettsperrholz BBS
according to ETA-06/0009

Incorporation into ETA TIROTECH® (ETA-17/0586) and ETA FIRE PROOF (ETA-17/0734)
applied for.



Thoma

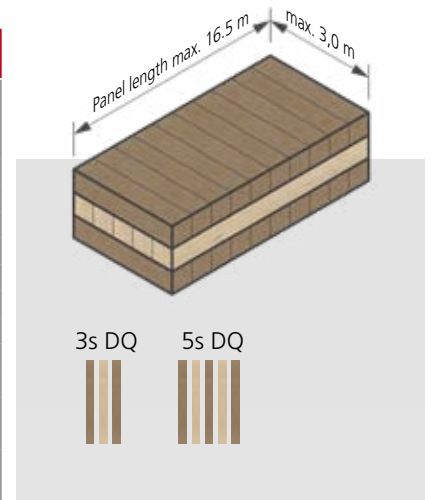
Thoma Holz GmbH

Holz100 according to ETA-13/0785

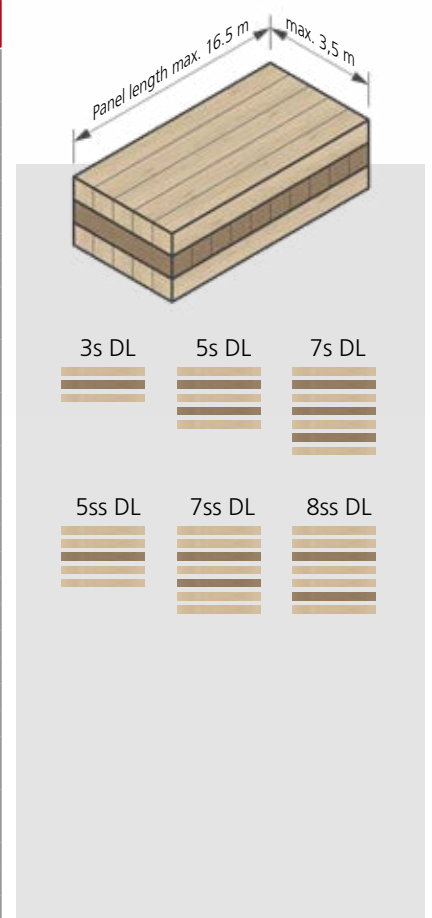
Incorporation into ETA TIROTECH® (ETA-17/0586) and ETA FIRE PROOF (ETA-17/0734)
applied for.

KLH Kreuzlagenholz (KLH® - CLT) according to ETA-06/0138

Wall constructions								
	Panel type		Plattenaufbau / Lamellenstärke [mm]					
Top layer perpendicular to panel direction (DQ)	60 mm	3s	20	20	20			
	70 mm		20	30	20			
	80 mm		30	20	30			
	90 mm		30	30	30			
	100 mm		30	40	30			
	110 mm		40	30	40			
	120 mm		40	40	40			
	100 mm	5s	20	20	20	20	20	
	110 mm		20	20	30	20	20	
	120 mm		30	20	20	20	30	
	130 mm		30	20	30	20	30	
	140 mm		30	20	40	20	30	
150 mm	30		30	30	30	30		
160 mm		40	20	40	20	40		

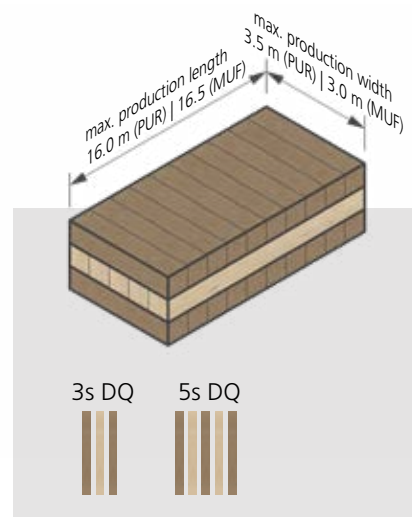


Floor/ceiling and roof constructions										
	Panel type		Panel structure / lamella thickness [mm]							
Top layer parallel to panel direction (DL)	60 mm	3s	20	20	20					
	70 mm		20	30	20					
	80 mm		30	20	30					
	90 mm		30	30	30					
	100 mm		40	20	40					
	110 mm		40	30	40					
	120 mm		40	40	40					
	100 mm	5s	20	20	20	20	20			
	110 mm		20	20	30	20	20			
	120 mm		30	20	20	20	30			
	130 mm		30	20	30	20	30			
	140 mm		40	20	20	20	40			
	150 mm		40	20	30	20	40			
	160 mm		40	20	40	20	40			
	170 mm		40	30	30	30	40			
	180 mm		40	30	40	30	40			
	190 mm		40	40	30	40	40			
	200 mm		40	40	40	40	40			
	160 mm	5ss	30+30	40	30+30					
	180 mm	7s	20	40	20	20	20	40	20	
	200 mm		20	40	20	40	20	40	20	
	220 mm		30	40	30	20	30	40	30	
	240 mm		30	40	30	40	30	40	30	
	180 mm	7ss	30+30	20	20	20	30+30			
200 mm	30+30		20	40	20	30+30				
220 mm	40+40		20	20	20	40+40				
240 mm	40+40		20	40	20	40+40				
260 mm	40+40		30	40	30	40+40				
280 mm	40+40		40	40	40	40+40				
300 mm	8ss	40+40	30	40+40	30	40+40				
320 mm		40+40	40	40+40	40	40+40				



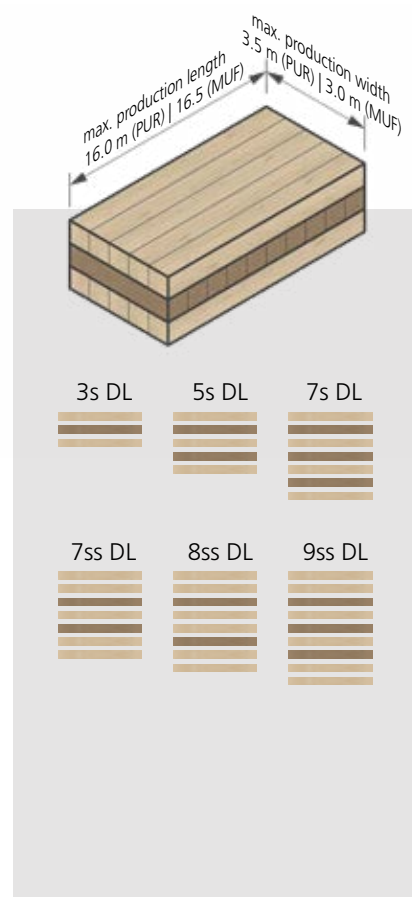
Wall constructions

	Panel type		Panel structure / lamella thickness [mm]					
Top layer perpendicular to panel direction (DQ)	60 mm*	3s	20	20	20			
	80 mm		20	40	20			
	90 mm		30	30	30			
	100 mm		30	40	30			
	120 mm		40	40	40			
	100 mm	5s	20	20	20	20	20	
	120 mm		30	20	20	20	30	
	140 mm		40	20	20	20	40	
	160 mm		40	20	40	20	40	



Floor/ceiling and roof constructions

	Panel type		Panel structure / lamella thickness [mm]					
Top layer parallel to panel direction (DL)	60 mm*	3s	20	20	20			
	80 mm		30	20	30			
	90 mm		30	30	30			
	100 mm		40	20	40			
	120 mm		40	40	40			
	100 mm	5s	20	20	20	20	20	
	120 mm		30	20	20	20	30	
	140 mm		40	20	20	20	40	
	160 mm		40	20	40	20	40	
	180 mm		40	30	40	30	40	
	200 mm		40	40	40	40	40	
	220 mm	7s	40	20	40	20	40	20
	240 mm		40	20	40	40	40	20
	200 mm	7ss	20+40	20	40	20	40+20	
	220 mm		40+40	20	20	20	40+40	
	240 mm		40+40	20	40	20	40+40	
	260 mm		40+40	30	40	30	40+40	
	280 mm		40+40	40	40	40	40+40	
	320 mm*	8ss	40+40	40	40+40	40	40+40	
	300 mm	9ss	40+40	20	40	20	40	20
								40+40



*can only be produced identically in pairs

Scan to find out more:
www.mm-holz.com/



CLT dimensioning program



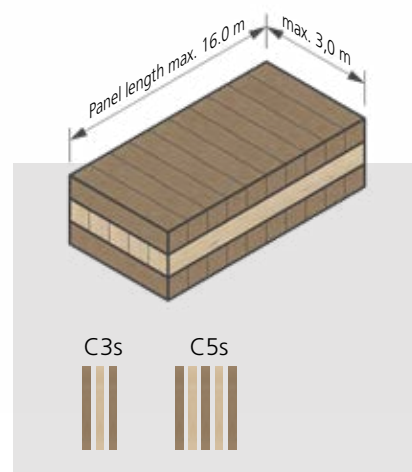


Stora Enso WP St. Leonhard GmbH

CLT – Cross Laminated Timber according to ETA-14/0349

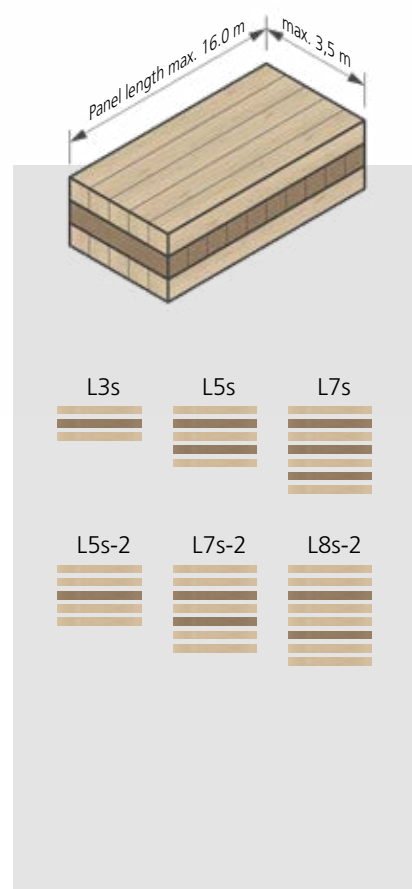
Wall constructions

	Panel type		Panel structure/lamella thickness [mm]				
Top layer perpendicular to panel direction (DQ)	60 mm	C3s	20	20	20		
	80 mm		20	40	20		
	90 mm		30	30	30		
	100 mm		30	40	30		
	120 mm		40	40	40		
	100 mm	C5s	20	20	20	20	20
	120 mm		30	20	20	20	30
	140 mm		40	20	20	20	40
	160 mm		40	20	40	20	40



Floor/ceiling and roof constructions

	Panel type		Panel structure/lamella thickness [mm]				
Top layer parallel to panel direction (DL)	60 mm	L3s	20	20	20		
	80 mm		20	40	20		
	90 mm		30	30	30		
	100 mm		30	40	30		
	120 mm		40	40	40		
	100 mm	L5s	20	20	20	20	20
	120 mm		30	20	20	20	30
	140 mm		40	20	20	20	40
	160 mm		40	20	40	20	40
	180 mm		40	30	40	30	40
	200 mm		40	40	40	40	40
	160 mm	L5s-2	30+30	40	30+30		
	180 mm	L7s	30	20	30	20	30
	200 mm		20	40	20	40	20
	240 mm		30	40	30	40	30
	220 mm	L7s-2	30+30	30	40	30	30+30
	240 mm		40+40	20	40	20	40+40
	260 mm		40+40	30	40	30	40+40
	280 mm		40+40	40	40	40	40+40
	300 mm	L8s-2	40+40	30	40+40	30	40+40
	320 mm		40+40	40	40+40	40	40+40



Scan to find out more:

CLT – Timber products | Stora Enso



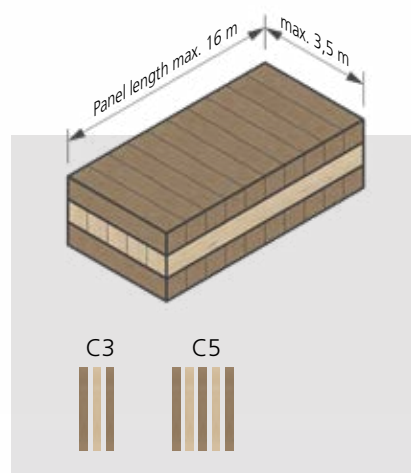
Dimensioning software for timber structures

calculatis.storaenso.com/



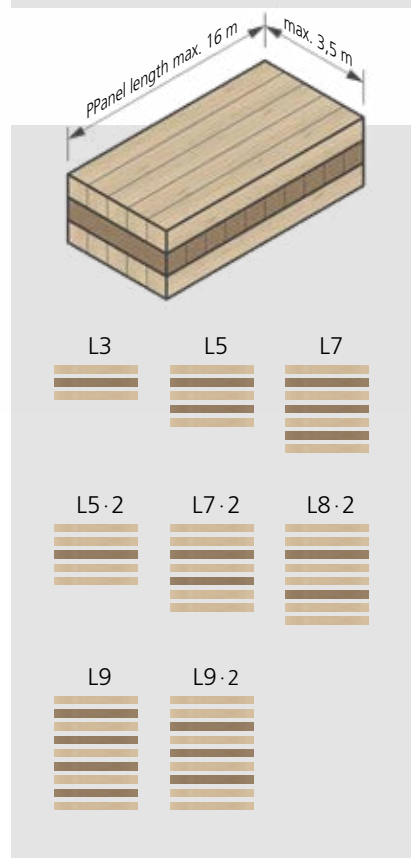
Wall constructions

	Element type		Element structure / lamella thickness [mm]						
Top layer perpendicular to panel direction (DQ)	60 mm	C3	20	20	20				
	80 mm		30	20	30				
	90 mm		30	30	30				
	100 mm		30	40	30				
	120 mm		40	40	40				
	100 mm	C5	20	20	20	20	20		
	120 mm		30	20	20	20	30		
	140 mm		30	30	20	30	30		
	160 mm		40	20	40	20	40		
	180 mm		40	30	40	30	40		
	200 mm		40	40	40	40	40		



Floor/ceiling and roof constructions

	Element type		Element structure / lamella thickness [mm]						
Top layer parallel to panel direction (DL)	60 mm	L3	20	20	20				
	80 mm		30	20	30				
	90 mm		30	30	30				
	100 mm		30	40	30				
	120 mm		40	40	40				
	100 mm	L5	20	20	20	20	20		
	120 mm		30	20	20	20	30		
	140 mm		40	20	20	20	40		
	160 mm		40	20	40	20	40		
	180 mm		40	30	40	30	40		
	200 mm		40	40	40	40	40		
	160 mm	L5 · 2	30+30	40	30+30				
	180 mm	L7	30	20	30	20	30	20	30
	200 mm		20	40	20	40	20	40	20
	220 mm		40	20	40	20	40	20	40
	240 mm		30	40	30	40	30	40	30
	180 mm	L7 · 2	30+30	20	20	20	30+30		
	200 mm		30+30	30	20	30	30+30		
	220 mm		40+40	20	20	20	40+40		
	240 mm		40+40	20	40	20	40+40		
	260 mm		40+40	30	40	30	40+40		
	280 mm		40+40	40	40	40	40+40		
	300 mm	L8 · 2	40+40	30	40+40	30	40+40		
	320 mm		40+40	40	40+40	40	40+40		
	360 mm	L9	40	40	40	40	40	40	40
	280 mm	L9 · 2	30+30	40	20	40	20	40	30+30
	360 mm		40+40	40	40	40	40	40	40+40



Scan to find out more:

www.theurl-holz.at



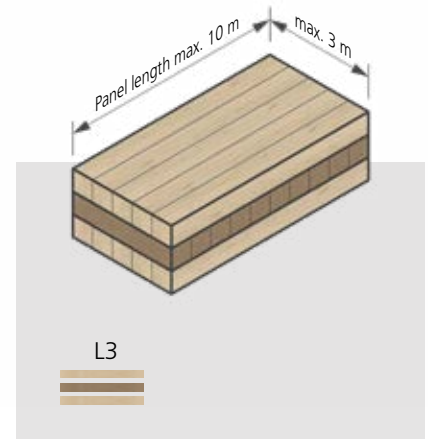


Thoma

Thoma Holz GmbH

Holz100 according to ETA-13/0785

Floor/ceiling constructions						
	Element type		Element structure / lamella thickness [mm]			
Top layer in longitudinal direction of panel (DL)	175 mm	L3	26	29	120	
	195 mm		26	29	140	
	215 mm		26	29	160	
	235 mm		26	29	180	
	255 mm		26	29	200	



Scan and find out more:

www.thoma.at

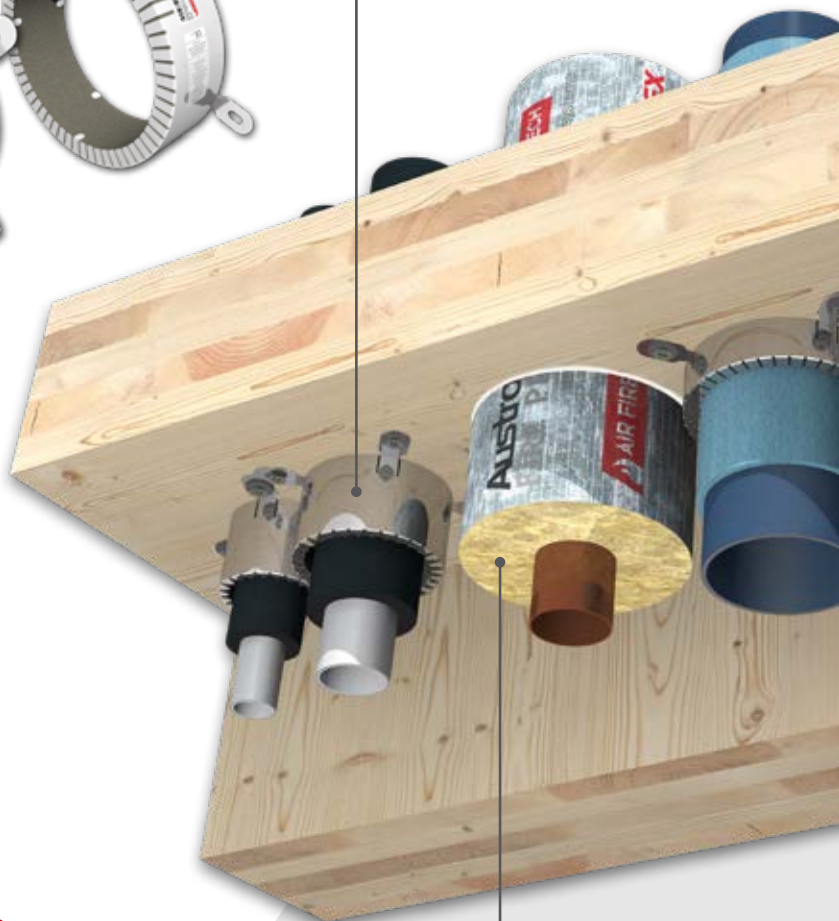


SINGLE PENETRATION SEALS

In collaboration with many well-known manufacturers of cross-laminated timber constructions, tests were carried out on a large number of new single penetration seals for combustible and non-combustible pipes in wall and floor/ceiling elements made of cross-laminated timber. For sealing off ventilation ducts, tests were carried out on the Air Fire Tech INLAP fire damper according to EN 15650 and also on nationally approved Air Fire Tech FLI-VE90 fire damper air vents as single feedthroughs according to OIB usage guidelines.

RORCOL pipe collars

- For combustible and non-combustible pipes
- For cable bundles up to Ø 100 mm
- No spacing



FIRE PROOF pipe section

- For non-combustible pipes up to Ø 76 mm
- No spacing



INLAP fire dampers

- Small installation depth
- Easy installation



FSAeco fire damper air vent FLI-VE90

- No annual inspection requirement



PRODEC fire damper air vent FLI-VE_(ho+ve)90

- Free cross-section

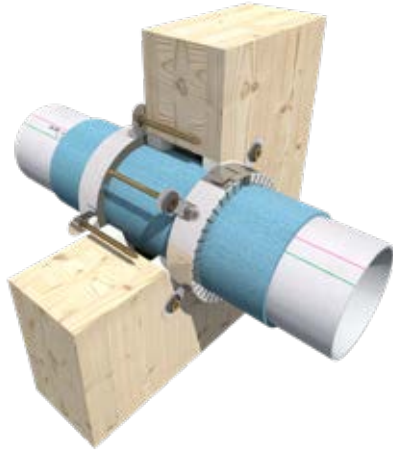


for cross-laminated timber walls ≥ 100 mm,
with or without plasterboard as per EN 520

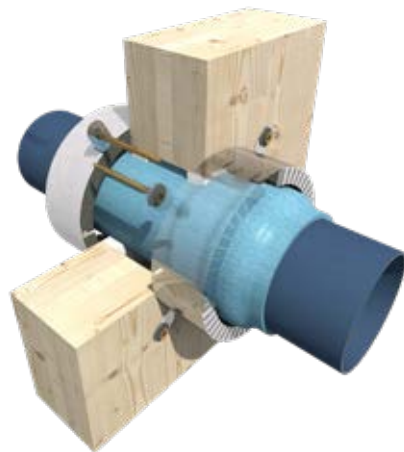


RORCOL V30 / RORCOL V60 Pipe collars for plastic sewage pipes

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



RORCOL V30
for sewage pipes with insulation



RORCOL V60
for sewage pipes with plug-in sleeve



RORCOL V30
for sewage pipes without insulation

Application areas

EI90

RORCOL size

- DN56, DN63, DN80, DN110, DN125, DN140, DN160, DN180, DN200, DN250

Pipe end configuration¹

- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter

- PE $\leq \varnothing 200$ mm
- PP $\leq \varnothing 160$ mm
- PP-R $\leq \varnothing 110$ mm
- PVC-U $\leq \varnothing 250$ mm
- Multilayer plastic pipes $\leq \varnothing 160$ mm
 - POLO-KAL NG ($\leq \varnothing 200$ mm), XS, 3S; RAUPIANO PLUS, etc.
- Pellet pipes (PVC, PVC/PU) $\varnothing 58$ mm

Insulating material / Insulation thickness (LS, CS)²

- Uninsulated
- PE ≤ 5 mm
- PE ≤ 20 mm for PP-R pipes
- Elastomer ≤ 25 mm
- Elastomer ≤ 43 mm for PP-R pipes
- Mineral wool with aluminium laminate ≤ 50 mm for PP-R pipes
- Sound insulation
 - Astrophon sound insulation mat type ST GK 070, GeberitIsol

Fixing of pipe collars

- Chipboard screws

Service support construction

- For plastic pipes:
 - ≤ 500 mm on both sides of the wall
- For pellet pipes:
 - ≤ 500 mm on both sides of the wall

Installation method

- Surface-mounted

Annular gap

- 0-10 mm annular gap on both sides of the wall
- 20-25 mm deep filled with firestop sealant

Other applications

- Plug-in sleeve up to pipe $\varnothing 160$ mm (collar one size larger than the pipe diameter)

¹ Pipe end configuration according to EN 1366-3

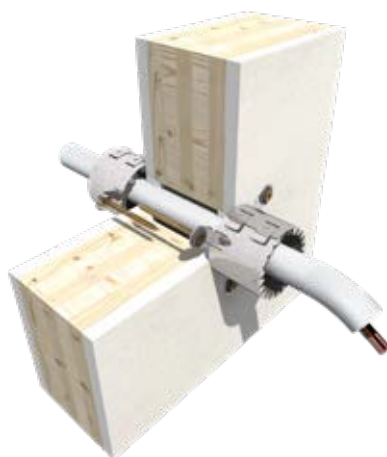
² With local or continuous insulation according to EN 1366-3

RORCOL AV60 Pipe collars for multi-layer composite pipes, metal pipes and cables

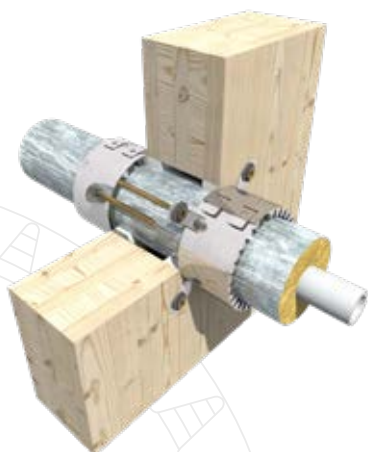
for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



RORCOL AV60
for metal pipes



RORCOL AV60
for electrical conduits with cable



RORCOL AV60
for multi-layer composite pipes

Application areas

EI90

RORCOL size

- DN40, DN56, DN63, DN80, DN110, DN125, DN140, DN160

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Multi-layer composite pipes $\leq \varnothing 63$ mm
 - TECEflex, KELOX®, FlowFit etc.
- Metal pipes: Carbon steel $\leq \varnothing 76$ mm
 - Copper $\leq \varnothing 22$ mm
- Dimensions of electrical conduits
 - Plastic electrical conduits $\leq \varnothing 50$ mm
 - (with/without cables with an outer diameter $\leq \varnothing 21$ mm)
 - Tightly secured bundles $\leq \varnothing 100$ mm consisting of plastic electrical conduits $\leq \varnothing 50$ mm
 - (with/without cables with an outer diameter $\leq \varnothing 21$ mm)
- Cable dimensions
 - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter $\leq \varnothing 21$ mm
 - Tightly secured cable bundles $\leq \varnothing 100$ mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter $\leq \varnothing 21$ mm

Insulating material / Insulation thickness (CS)²

For multi-layer composite pipes:

- PE protective pipe
- PE 9-10 mm
- Elastomer 9-43 mm
- Mineral wool with aluminium laminate < 50 mm

For metal pipes:

- PE ≥ 10 mm
- Elastomer ≥ 6 mm
- Mineral wool with aluminium laminate ≥ 30 mm

Fixing of pipe collars

- Chipboard screws

Service support construction

- **For multi-layer composite pipes and metal pipes:**
≤ 500 mm on both sides of the wall
- **For electrical conduits and cables:**
≤ 250 mm on both sides of the wall

Installation method

- Surface-mounted

Annular gap

- 0-10 mm annular gap on both sides of the wall 20-25 mm deep filled with firestop sealant

¹ Pipe end configuration according to EN 1366-3

² With continuous insulation according to EN 1366-3

FIRE PROOF Pipe section for metal pipes

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



FIRE PROOF
for copper pipes



FIRE PROOF
for stainless steel pipes



FIRE PROOF
for copper pipes

Application areas

EI90

FIRE PROOF size

Type	Outer pipe diameter	Insulation thickness
FIRE PROOF	Ø15 mm	20 mm
	Ø18 mm	20 mm
	Ø22 mm	30 mm
	Ø28 mm	30 mm
	Ø35 mm	30 mm
	Ø42 mm	30 mm
	Ø42 mm	40 mm
	Ø48 mm	40 mm
	Ø54 mm	50 mm
	Ø64 mm	50 mm
	Ø76 mm	50 mm

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Metal pipes: Carbon steel $\leq \text{Ø}76$ mm
Copper $\leq \text{Ø}54$ mm

Required length of pipe section

(arrangement in the centre of the wall)

- up to pipe Ø54 mm: ≥ 1 m
- for pipe Ø76 mm: ≥ 2 m

Service support construction

- ≤ 500 mm on both sides of the wall

Annular gap

- 0-10 mm annular gap on both sides of the wall 20-25 mm deep filled with firestop sealant

¹ Pipe end configuration according to EN 1366-3

INLAP Fire dampers for ventilation ducts

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



INLAP
in 150 mm cross-laminated timber wall with plasterboard

Application areas

EI90

INLAP size

- DN100, DN125, DN160

Pipe material / Outer pipe diameter

- Spiral ducts $\leq$ DN160

Installation method

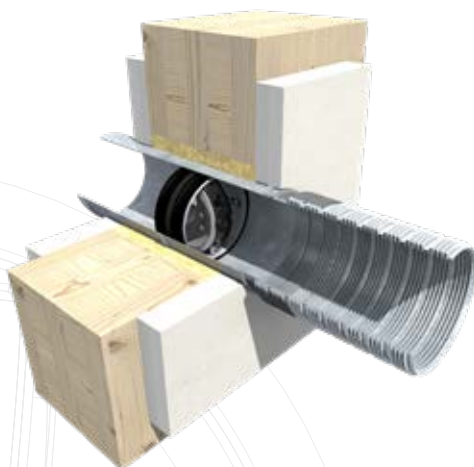
- Flush-mounted

Annular gap

- 0-30 mm annular gap filled with insulating wool and on both sides of the wall 20-25 mm deep with firestop sealant



INLAP-ST
in 150 mm cross-laminated timber wall



INLAP
in 100 mm cross-laminated timber wall
with local plasterboard

- *Low pressure loss*
- *Fire damper according to EN 15650*
- *Space-saving due to small installation depth*

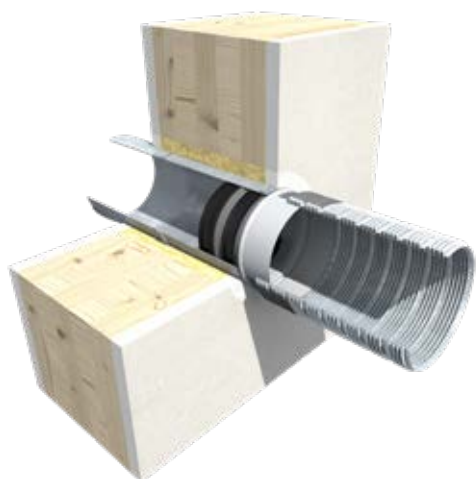


FSAeco Fire damper air vents for ventilation ducts

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



FSAeco-ST
in 150 mm cross-laminated timber wall



FSAeco-ST
in 150 mm cross-laminated timber wall with plasterboard



FSAeco
in 150 mm cross-laminated timber wall

Application areas

FLI-VE90

FSAeco size

- DN100, DN125, DN160

Pipe material / Outer pipe diameter

- Spiral ducts $\leq$ DN160

Installation method

- Flush-mounted

Annular gap

- 0-30 mm annular gap filled with insulating wool and on both sides of the wall 20-25 mm deep with firestop sealant

- Small installation depth
- FLI-VE90 fire damper air vent
- Optionally with integrated duct connector

NOTE

Due to the design and method of operation of fire damper air vents, regular check testing is not required for the applications specified in ÖNORM H 6027.

for cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520



RORCOL V30 / RORCOL V60 Pipe collars for plastic sewage pipes

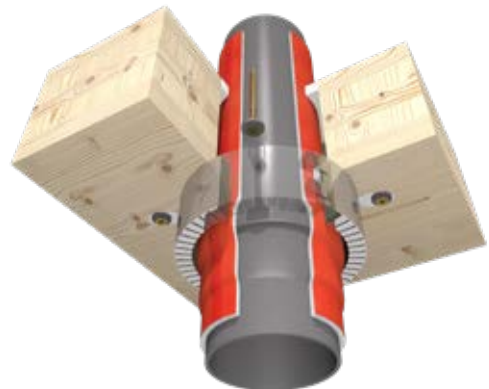
for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



RORCOL V30
for sewage pipes with insulation



RORCOL V30
for sewage pipes without insulation



RORCOL V60
for sewage pipes with plug-in sleeve

Application areas

EI90

RORCOL size

- DN56, DN63, DN80, DN110, DN125, DN140, DN160, DN250

Pipe end configuration¹

- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter

- PE $\leq \varnothing 135$ mm
- PP $\leq \varnothing 160$ mm
- PP-R $\leq \varnothing 110$ mm
- Multilayer plastic pipes $\leq \varnothing 160$ mm
- POLO-KAL NG ($\leq \varnothing 200$ mm), XS, 3S; RAUPIANO PLUS, etc.

Insulating material / Insulation thickness (LS, CS)²

- Uninsulated
- PE ≤ 5 mm
- PE ≤ 10 mm for PP-R pipes
- Elastomer ≤ 25 mm
- Elastomer ≤ 43 mm for PP-R pipes EI90
- Mineral wool with aluminium laminate ≤ 50 mm for PP-R pipes

Fixing of pipe collars

- Chipboard screws

Service support construction

- ≤ 500 mm on the top side of the floor/ceiling

Installation method

- Surface-mounted on underside of floor/ceiling

Annular gap

- 0-10 mm annular gap at the top and underside of the floor/ceiling 20-25 mm deep filled with firestop sealant

Other applications

- Plug-in sleeve up to pipe $\varnothing 160$ mm
- Electrofusion collar up to pipe $\varnothing 110$ mm

¹ Pipe end configuration according to EN 1366-3

² With local or continuous insulation according to EN 1366-3

RORCOL AV60 Pipe collars for multi-layer composite pipes, metal pipes and cables

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



RORCOL AV60
for multi-layer composite pipes



RORCOL AV60
for copper pipes



RORCOL AV60
for bundles of electrical conduits

Application areas

EI90

RORCOL size

- DN40, DN56, DN63, DN80, DN110, DN125, DN140, DN160

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Multi-layer composite pipes $\leq \varnothing 63$ mm
 - TECEflex, KELOX®, FlowFit etc.
- Metal pipes: Carbon steel $\leq \varnothing 76$ mm
Copper $\leq \varnothing 22$ mm
- Dimensions of electrical conduits
 - Plastic electrical conduits $\leq \varnothing 50$ mm
(with/without cables with an outer diameter $\leq \varnothing 21$ mm)
 - Tightly secured bundles $\leq \varnothing 100$ mm consisting of plastic electrical conduits $\leq \varnothing 50$ mm
(with/without cables with an outer diameter $\leq \varnothing 21$ mm)
- Cable dimensions
 - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter $\leq \varnothing 21$ mm
 - Tightly secured cable bundles $\leq \varnothing 100$ mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter $\leq \varnothing 21$ mm

Insulating material / Insulation thickness (CS)²

For multi-layer composite pipes:

- PE protective pipe
- PE 9-10 mm
- Elastomer 9-43 mm
- Mineral wool with aluminium laminate < 50 mm

For metal pipes:

- PE ≥ 10 mm
- Elastomer ≥ 6 mm
- Mineral wool with aluminium laminate ≥ 30 mm

Fixing of pipe collars

- Chipboard screws

Service support construction

- **For multi-layer composite pipes and metal pipes:**
≤ 500 mm on the top side of the floor/ceiling
- **For electrical conduits and cables:**
≤ 250 mm on the top side of the floor/ceiling

Installation method

- Surface-mounted

Annular gap

- 0-10 mm annular gap at the top and underside of the floor/ceiling 20-25 mm deep filled with firestop sealant

¹ Pipe end configuration according to EN 1366-3

² With continuous insulation according to EN 1366-3

FIRE PROOF

Pipe section for metal pipes

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



FIRE PROOF
for steel pipes



FIRE PROOF
flush-mounted for copper pipes



FIRE PROOF
flush-mounted for copper pipes

Application areas

EI90

FIRE PROOF size

Type	Outer pipe diameter	Insulation thickness
FIRE PROOF	Ø15 mm	20 mm
	Ø18 mm	20 mm
	Ø22 mm	30 mm
	Ø28 mm	30 mm
	Ø35 mm	30 mm
	Ø42 mm	30 mm
	Ø42 mm	40 mm
	Ø48 mm	40 mm
	Ø54 mm	50 mm
	Ø64 mm	50 mm
	Ø76 mm	50 mm

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Metal pipes: Carbon steel $\leq \text{Ø}76$ mm
Copper $\leq \text{Ø}54$ mm

Required length of pipe section

(arrangement in the centre of the floor/ceiling)

- up to pipe Ø54 mm: ≥ 1 m
- for pipe Ø76 mm: ≥ 2 m

Service support construction

- ≤ 500 mm on the top side of the floor/ceiling

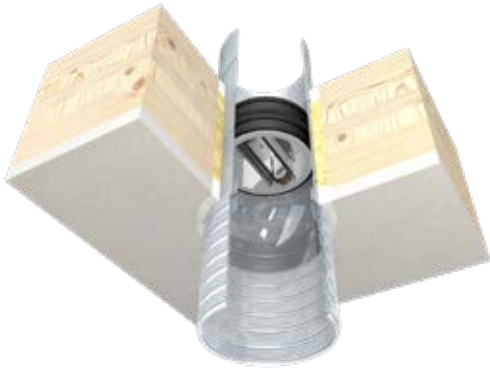
Annular gap

- 0-10 mm annular gap on both sides of the wall 20-25 mm deep filled with firestop sealant

¹ Pipe end configuration according to EN 1366-3

INLAP Fire dampers for ventilation ducts

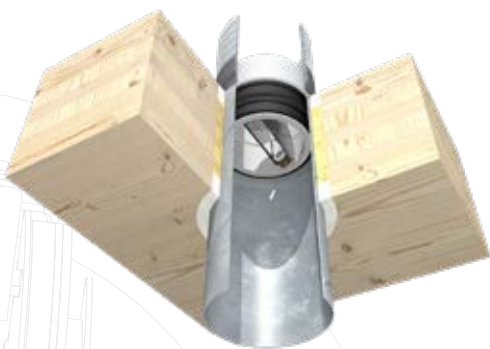
for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



INLAP
in 140 mm cross-laminated timber floor/ceiling with plasterboard



INLAP
in 140 mm cross-laminated timber floor/ceiling



INLAP-ST with integrated duct connector

Application areas

EI90

INLAP size

- DN100, DN125, DN160

Pipe material / Outer pipe diameter

- Spiral ducts $\leq$ DN160

Insulating material / Insulation thickness

- Uninsulated

Installation method

- Flush-mounted

Annular gap

- 0-10 mm annular gap on the top side and underside of the floor/ceiling 20-25 mm deep filled with firestop sealant

- *Low pressure loss*
- *Fire damper according to EN 15650*
- *Space-saving due to small installation depth*



National construction products

FSAeco Fire damper air vents for ventilation ducts

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520

Application areas

FLI-VE90

FSAeco size

- DN100, DN125, DN160

Pipe material / Outer pipe diameter

- Spiral ducts $\leq$ DN160

Insulating material / Insulation thickness

- Uninsulated

Installation method

- Flush-mounted

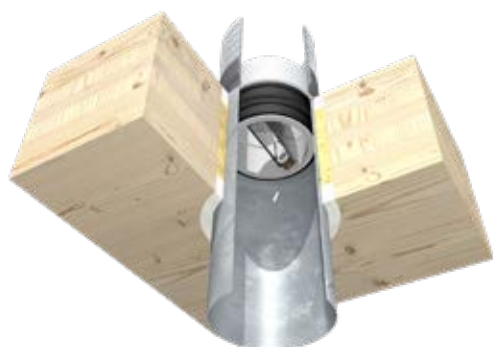
Annular gap

- 0-10 mm annular gap on the top side and underside of the floor/ceiling 20-25 mm deep filled with firestop sealant

- Small installation depth
- FLI-VE90 fire damper air vent
- Optionally with integrated duct connector

NOTE

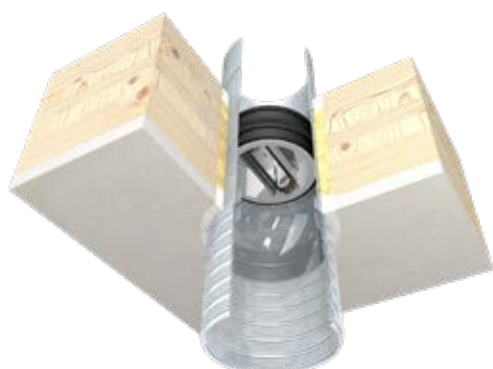
Due to the design and method of operation of fire damper air vents, regular check testing is not required for the applications specified in ÖNORM H 6027.



FSAeco-ST
with integrated duct connector



FSAeco-ST
in 140 mm cross-laminated timber floor/ceiling with plasterboard



FSAeco
in 140 mm cross-laminated timber floor/ceiling
with plasterboard

PRODEC FLI-VE_(ho+ve) 90¹

The fire damper air vent with free cross-section

- Low pressure loss
- Easy cleaning of the air duct
- Extensive range of applications



Scan and find out more!

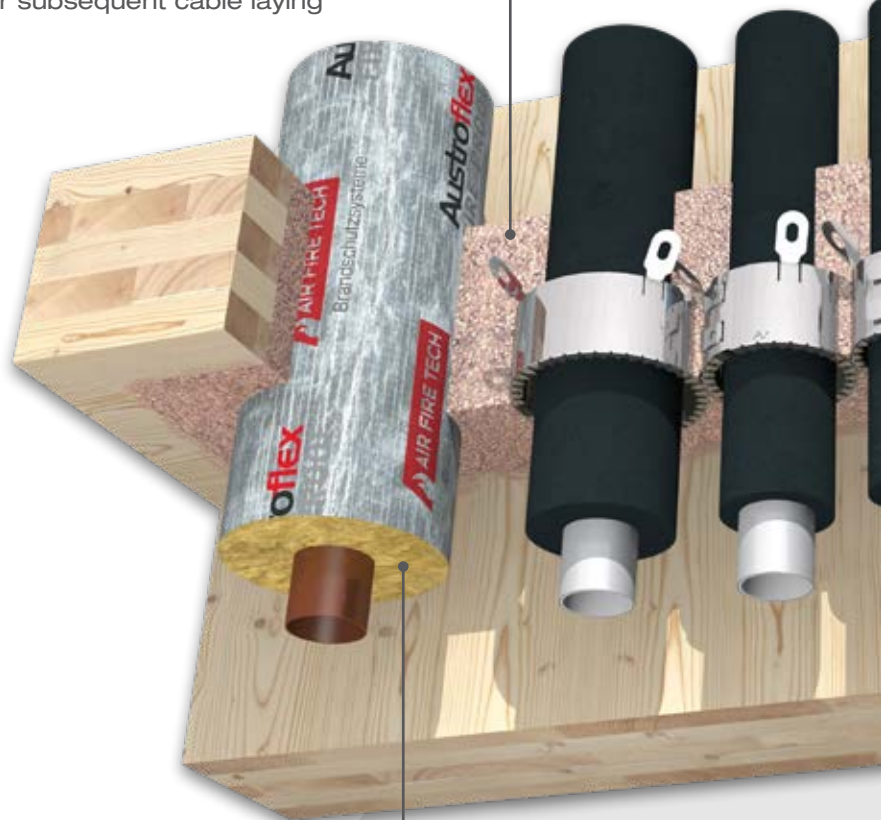
¹ The installation position of the element is limited to vertical installation.



The installation of **INLAP fire dampers** and **FSAeco fire damper air vents** has been tested and approved for sealing off air ducts. Plastic air ducts can be sealed with the **PRODEC fire damper air vent**. TIROTECH is also tested as a combined penetration seal according to EN 15882-5, a combination of mixed penetration seal and fire damper, according to EN 1366-2 and EN 1366-3. (see page 80)

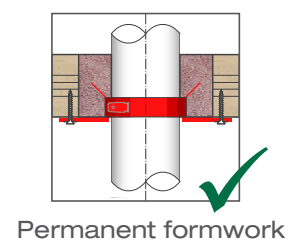
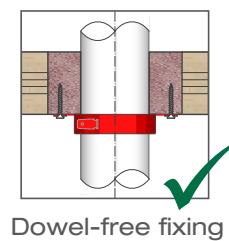
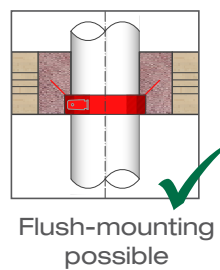
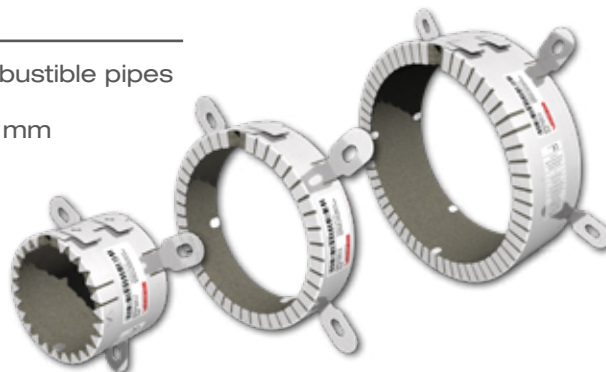
TIROTECH® fire protective mortar

- Application without any complex formwork
- Installation of empty conduits for subsequent cable laying



RORCOL pipe collars

- For combustible and non-combustible pipes
- For cable bundles up to Ø 100 mm
- Zero clearance



FIRE PROOF pipe section

- For non-combustible pipes up to Ø 76 mm
- Zero clearance



for cross-laminated timber walls ≥ 100 mm,
with or without plasterboard as per EN 520

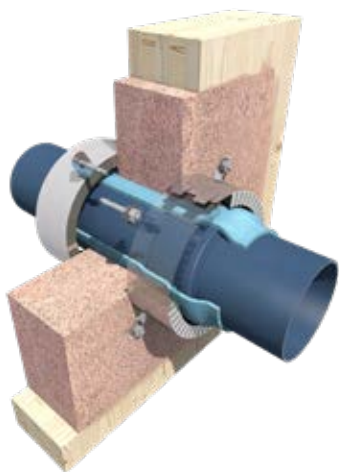


MIXED PENETRATION SEAL TIROTECH®

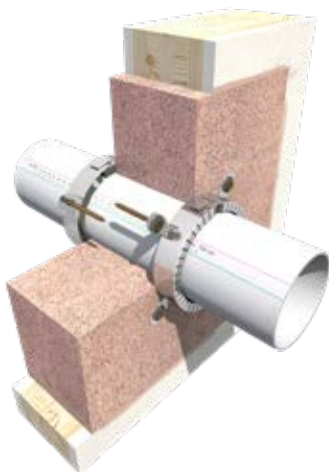
RORCOL V30 / RORCOL V60

for plastic sewage pipes

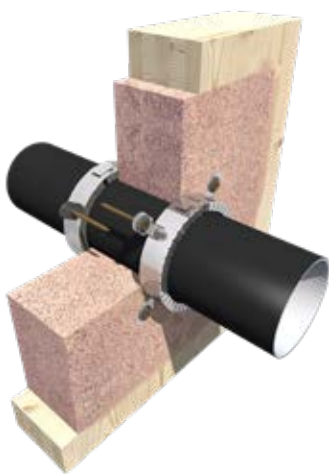
for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



RORCOL V60
for sewage pipes with plug-in sleeve



RORCOL V30
for sewage pipes without insulation



RORCOL V30
for sewage pipes without insulation

Application areas

EI90

RORCOL size

- DN40, DN56, DN63, DN80, DN110, DN125, DN140, DN160, DN180

Pipe end configuration¹

- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter

- PE, PP $\leq \varnothing 160$ mm
- Multilayer plastic pipes $\leq \varnothing 160$ mm
 - POLO-KAL NG, 3S; RAUPIANO PLUS etc.

Insulating material / Insulation thickness (LS, CS)²

- Uninsulated
- PE ≤ 5 mm
- Elastomer ≤ 19 mm

Fixing of pipe collars

- Chipboard screws

Service support construction

- ≤ 500 mm on both sides of the wall

Installation method

- Surface-mounted

¹ Pipe end configuration according to EN 1366-3

² With local or continuous insulation according to EN 1366-3

MIXED PENETRATION SEAL TIROTECH®

FIRE PROOF

for metal pipes

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



FIRE PROOF
for copper pipes



FIRE PROOF
for steel pipes



FIRE PROOF
for copper pipes

Application areas

EI90

FIRE PROOF size

Type	Outer pipe diameter	Insulation thickness
FIRE PROOF	Ø15 mm	20 mm
	Ø18 mm	20 mm
	Ø22 mm	30 mm
	Ø28 mm	30 mm
	Ø35 mm	30 mm
	Ø42 mm	30 mm
	Ø42 mm	40 mm
	Ø48 mm	40 mm
	Ø54 mm	50 mm
	Ø64 mm	50 mm
	Ø76 mm	50 mm

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Metal pipes: Carbon steel $\leq \text{Ø}76$ mm
Copper $\leq \text{Ø}54$ mm

Required length of pipe section

(arrangement in the centre of the wall)

- up to pipe Ø54 mm: ≥ 1 m
- for pipe Ø76 mm: ≥ 2 m

Service support construction

- ≤ 500 mm on both sides of the wall

¹ Pipe end configuration according to EN 1366-3

Concept 2 – Mixed pene

Concept 3

76 | MIXED PENETRATION SEALS

MIXED PENETRATION SEAL TIROTECH®

RORCOL V30 / RORCOL V60

for plastic sewage pipes

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520

Application areas

EI90

RORCOL size

- DN40, DN56, DN63, DN80, DN110, DN125, DN140, DN160

Pipe end configuration¹

- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter

- PE, PP $\leq \varnothing 160$ mm
- Multilayer plastic pipes $\leq \varnothing 160$ mm
 - POLO-KAL NG, 3S; RAUPIANO PLUS etc.

Insulating material / Insulation thickness (LS, CS)²

- Uninsulated
- PE ≤ 5 mm
- Elastomer ≤ 19 mm

Fixing of pipe collars

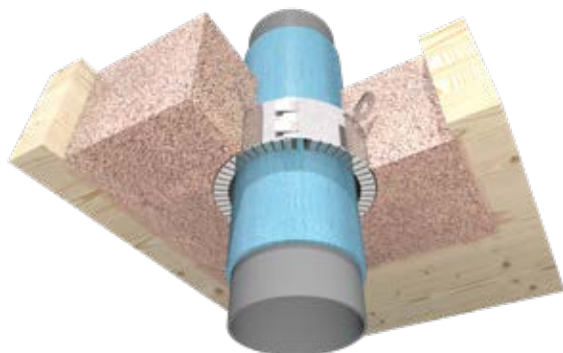
- Chipboard screws

Service support construction

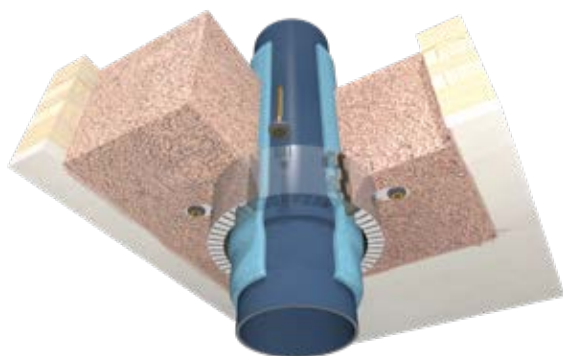
- ≤ 500 mm on the top side of the floor/ceiling

Installation method

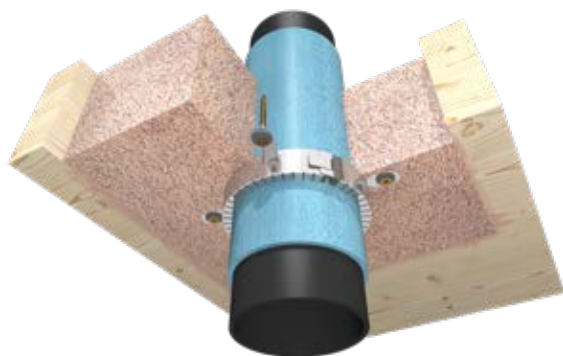
- Surface-mounted
- Flush-mounted



RORCOL V60
flush-mounted



RORCOL V60
for sewage pipes with plug-in sleeve



RORCOL V30
for sewage pipes with insulation

¹ Pipe end configuration according to EN 1366-3

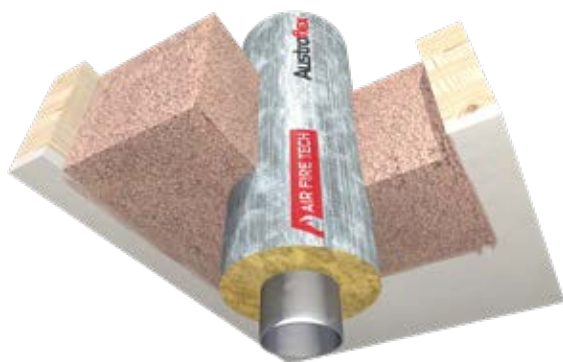
² With local or continuous insulation according to EN 1366-3

MIXED PENETRATION SEAL TIROTECH®

FIRE PROOF

for metal pipes

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



FIRE PROOF
for stainless steel pipes



FIRE PROOF
for copper pipes



FIRE PROOF
for copper pipes

Application areas

EI90

FIRE PROOF size

Type	Outer pipe diameter	Insulation thickness
FIRE PROOF	Ø15 mm	20 mm
	Ø18 mm	20 mm
	Ø22 mm	30 mm
	Ø28 mm	30 mm
	Ø35 mm	30 mm
	Ø42 mm	30 mm
	Ø42 mm	40 mm
	Ø48 mm	40 mm
	Ø54 mm	50 mm
	Ø64 mm	50 mm
	Ø76 mm	50 mm

Pipe end configuration¹

- U/C, C/C

Pipe material / Outer pipe diameter

- Metal pipes: Carbon steel $\leq \text{Ø}76$ mm
Copper $\leq \text{Ø}54$ mm

Required length of pipe section

(arrangement in the centre of the wall)

- up to pipe Ø54 mm: ≥ 1 m
- for pipe Ø76 mm: ≥ 2 m

Service support construction

- ≤ 500 mm on the top side of the floor/ceiling

¹ Pipe end configuration according to EN 1366-3

INLAP fire dampers

- Small installation depth
- Also suitable for insulated air ducts

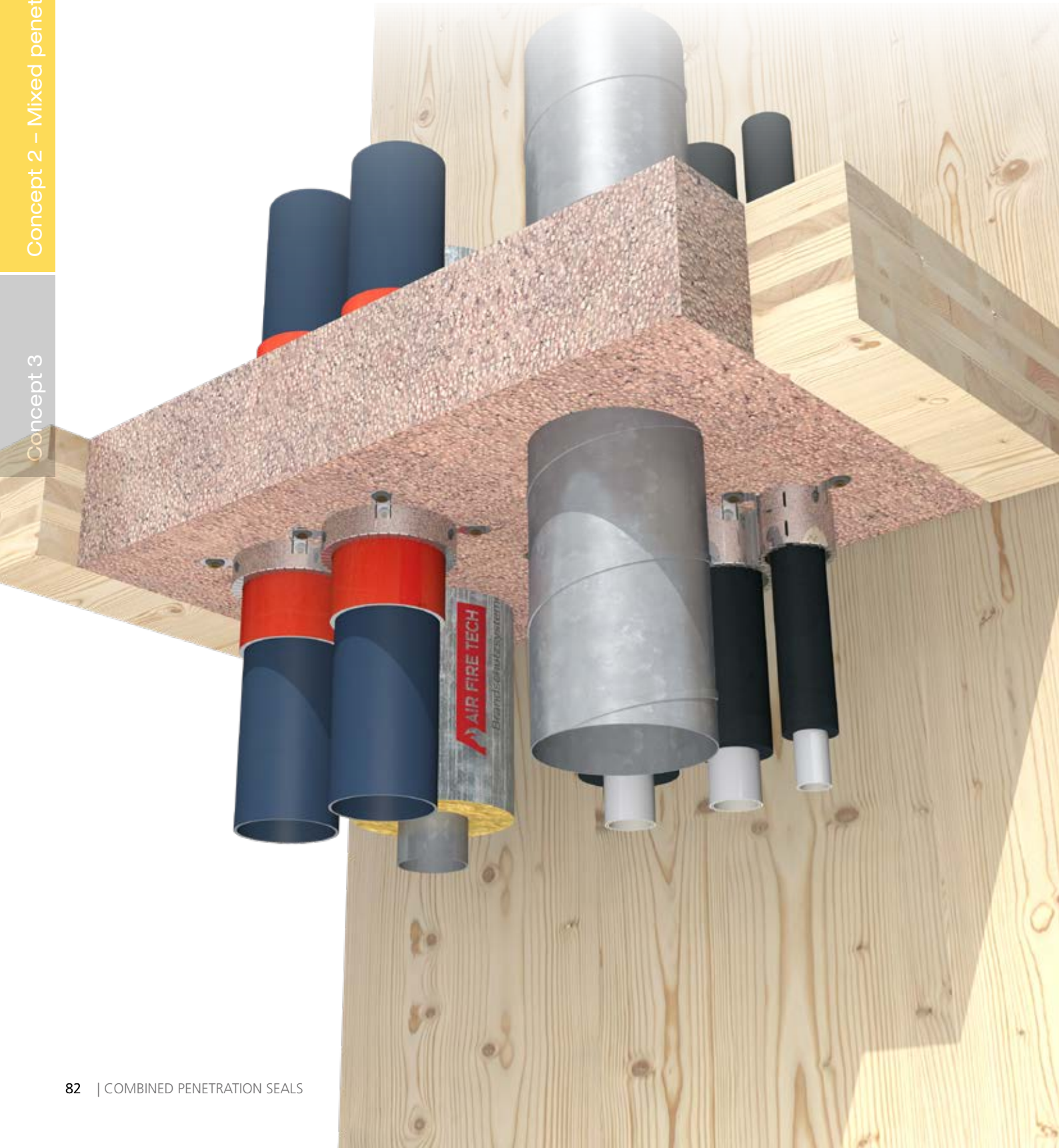


FIRE PROOF pipe section



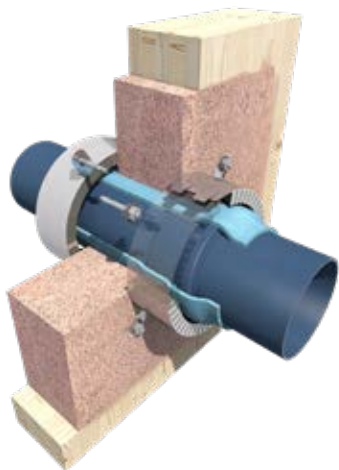
for cross-laminated timber walls ≥ 100 mm,
with or without plasterboard as per EN 520

and cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520

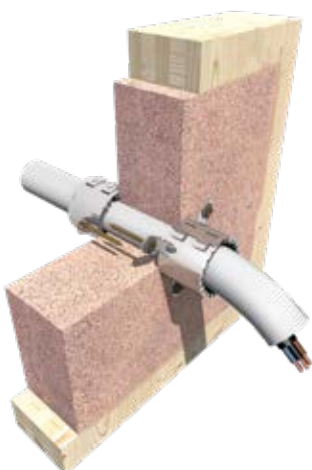


COMBINED PENETRATION SEAL TIROTECH® / RORCOL / FIRE PROOF

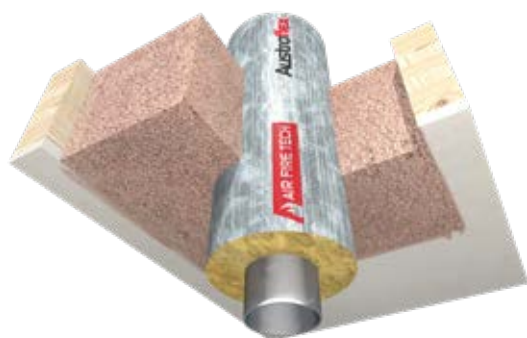
for cross-laminated timber walls ≥ 100 mm and cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



RORCOL V60
for sewage pipes with plug-in sleeve



RORCOL AV60
for electrical conduits



FIRE PROOF
for metal pipes

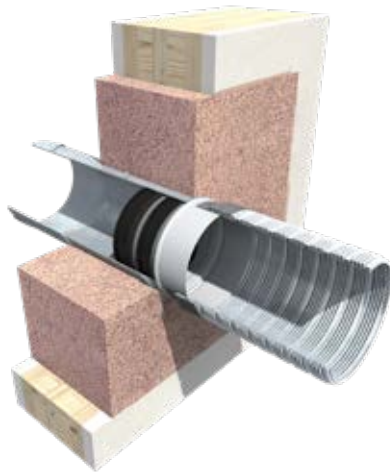
Application areas

See section "Mixed penetration seal TIROTECH®" – Page 70

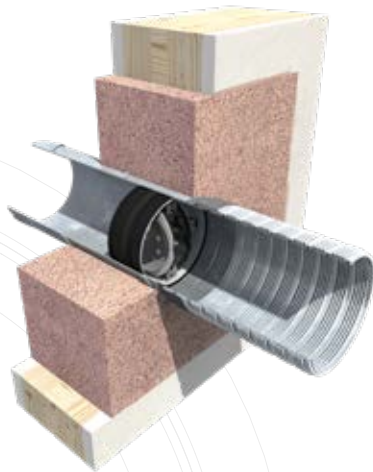
for cross-laminated timber walls ≥ 100 mm and cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520



INLAP
in 100 mm TIROTECH® fire protective mortar



INLAP-ST
with integrated duct connector



INLAP
in 130 mm TIROTECH® fire protective mortar

EI90

- DN110, DN125, DN160, DN200, DN250

- Spiral ducts $\leq$ DN250

- Uninsulated
- Elastomer 19 mm

- Flush-mounted

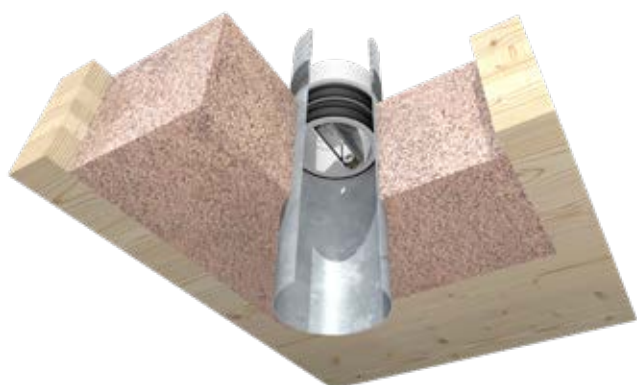
- *Low pressure loss*
- *Fire damper according to EN 15650*
- *Space-saving due to small installation depth*

COMBINED PENETRATION SEAL TIROTECH® / INLAP for ventilation ducts

for cross-laminated timber walls ≥ 100 mm and cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



INLAP
in 140 mm TIROTECH® fire protective mortar



INLAP-ST
with integrated duct connector



FSAeco
flush-mounted in insulated air duct

Application areas

EI90

INLAP size

- DN110, DN125, DN160, DN200, DN250

Pipe material / Outer pipe diameter

- Spiral ducts $\leq$ DN250

Insulating material / Insulation thickness

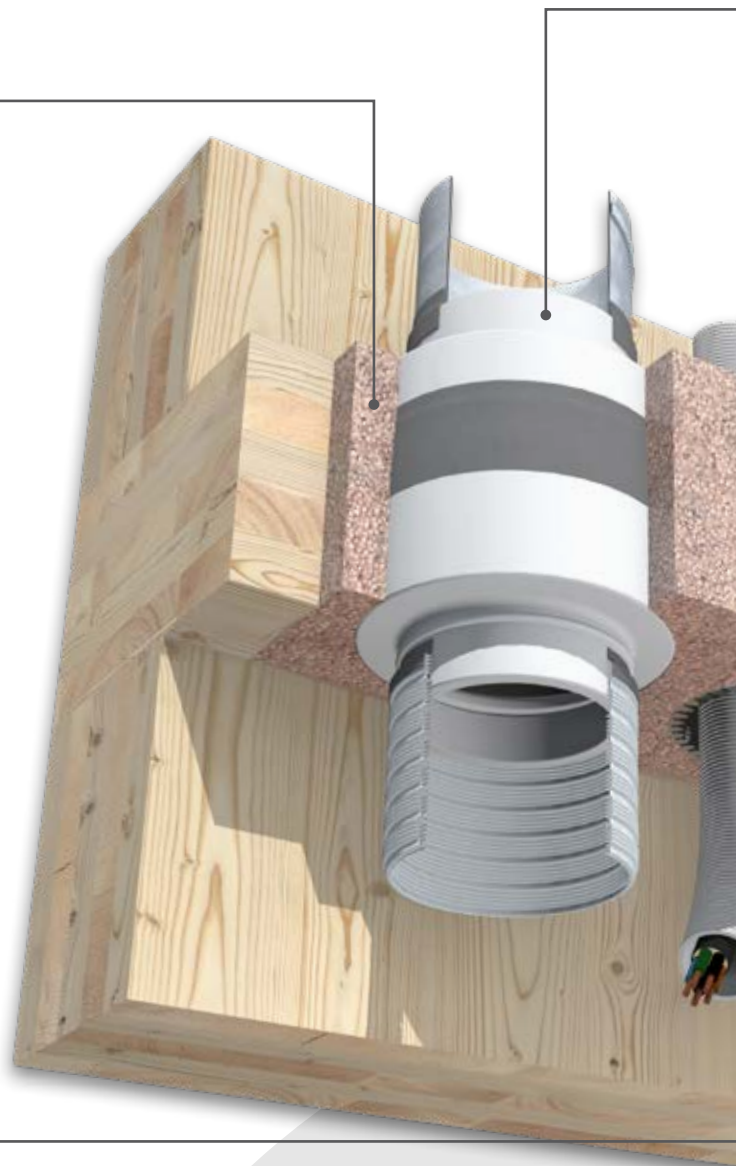
- Uninsulated
- Elastomer 19 mm

Installation method

- Flush-mounted

- *Space-saving due to small installation depth*
- *Low pressure loss*
- *Fire damper according to EN 15650*

TIROTECH is also tested as a national penetration seal combination, a combination of mixed penetration seal and FLI-VE fire damper air vent, as per OIB usage guideline OIB-095.4-001/06-008 and EN 1366-3.





Also suitable for
plastic air ducts!

PRODEC fire damper air vent FLI-VE_(ho+ve)90

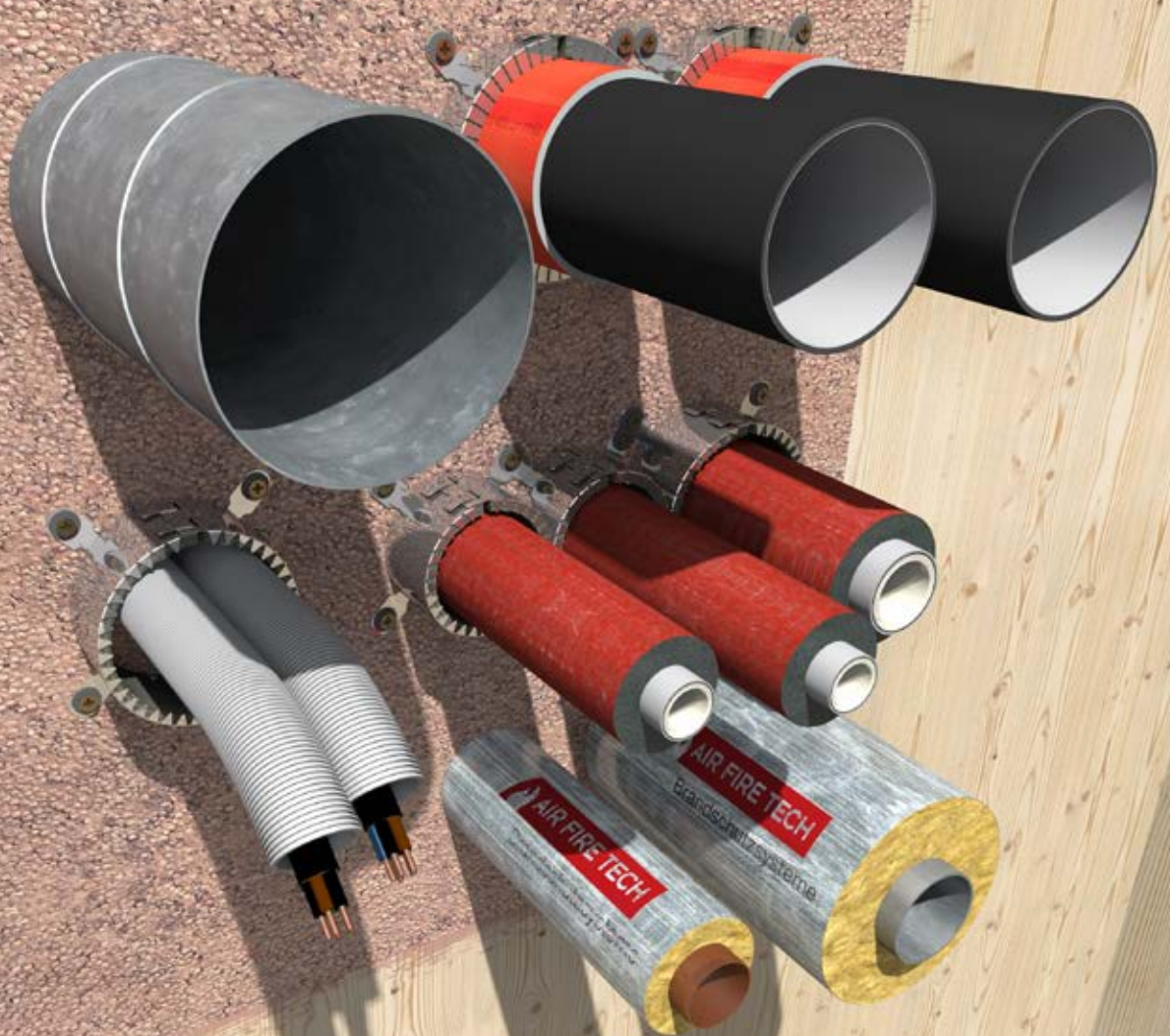
- No annual inspection obligation
- Also suitable for insulated air ducts
- Zero clearance to RORCOL pipe collars



FIRE PROOF pipe section



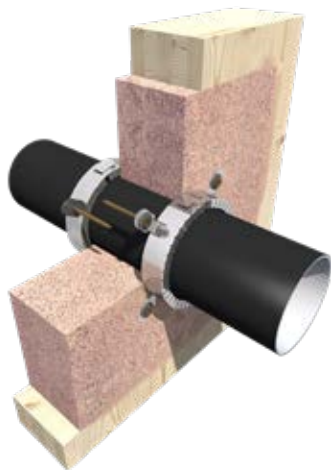
for cross-laminated timber walls ≥ 100 mm,
with or without plasterboard as per EN 520
and cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520



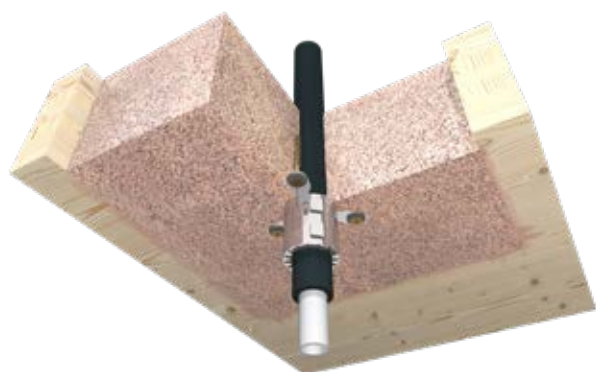
NATIONAL PENETRATION SEAL COMBINATION TIROTECH®

RORCOL / FIRE PROOF

for cross-laminated timber walls ≥ 100 mm and cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520



RORCOL V30
for sewage pipes



RORCOL AV60
for multi-layer composite pipes



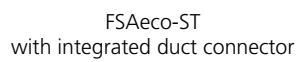
FIRE PROOF
for metal pipes

Application areas

See section "Mixed penetration seal TIROTECH®" – Page 70

FSAeco

for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



FLI-VE90

- Flush-mounted

- *Small installation depth*
- *FLI-VE90 fire damper air vent*
- *Optionally with integrated duct connector*

NATIONAL PENETRATION SEAL COMBINATION TIROTECH®

FSAeco

for ventilation ducts

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520

Application areas

FLI-VE90

FSAeco size

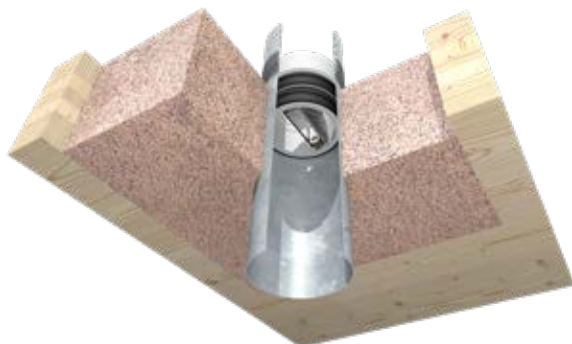
- DN100, DN125, DN160

Pipe material / Outer pipe diameter

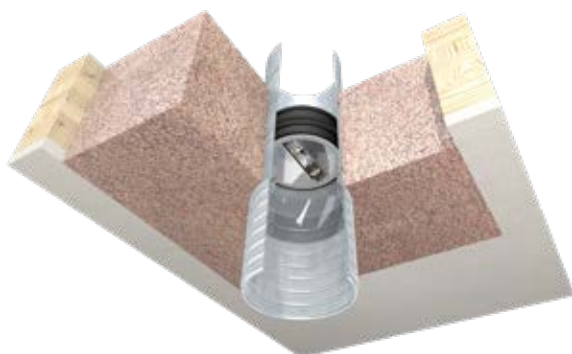
- Spiral ducts $\leq$ DN160

Installation method

- Flush-mounted



FSAeco-ST
with integrated duct connector



FSAeco
in 155 mm TIROTECH® fire protective mortar



FSAeco flush-mounted
in insulated air duct

- *Optionally with integrated duct connector*
- *Small installation depth*
- *Fire damper air vent FLI-VE90*

NATIONAL PENETRATION SEAL COMBINATION TIROTECH®

PRODEC

for ventilation ducts

for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520

FLI-VE_(ho+ve)90

Application areas

PRODEC size

- DN80, DN100, DN125, DN160

Pipe material / Outer pipe diameter

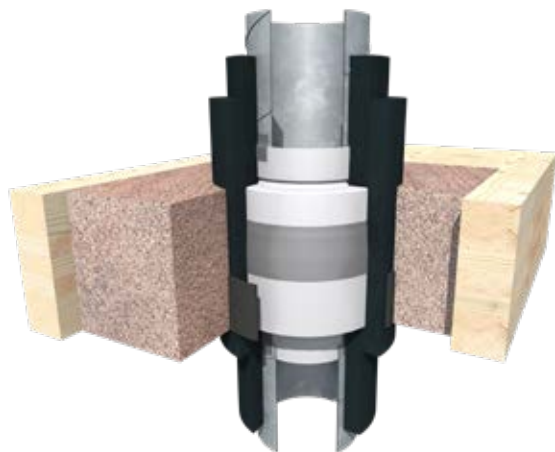
- Spiral ducts $\leq$ DN160

Insulating material / Insulation thickness

- Uninsulated
- Elastomer 19 mm

Installation method

- Surface-mounted
- Flush-mounted



PRODEC
in 140 mm TIROTECH®-fire protective mortar
with 19 mm Elastomer insulation



PRODEC
in 140 mm TIROTECH®-fire protective mortar
flush-mounted

- Free cross-section
- Low pressure loss

NATIONAL PENETRATION SEAL COMBINATION TIROTECH®

PRODEC

for ventilation ducts made of plastic
for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



PRODEC

in 140 mm TIROTECH®-fire protective mortar
with 5 mm structure-borne sound insulation

Application areas

FLI-VE_(ho+ve)90

PRODEC size

- DN80, DN100, DN125, DN160

Pipe material / Outer pipe diameter

- POLO-KAL NG $\leq$ DN160

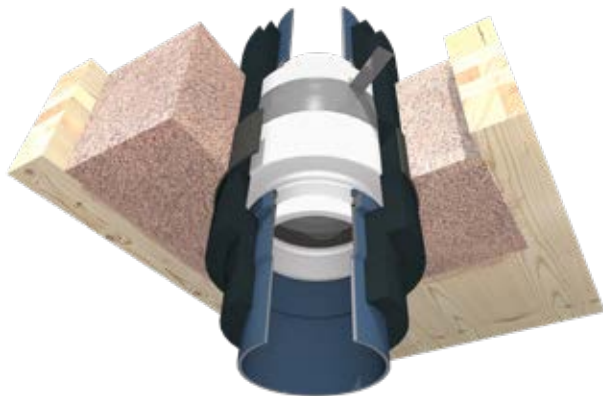
Insulating material / Insulation thickness

- Uninsulated
- Structure-borne noise insulation 5 mm
- Elastomer 19 mm

Einbauart

- Surface-mounted
- Flush-mounted

- *Integrated mounting lugs*
- *Free cross-section*



PRODEC

in 140 mm TIROTECH®-fire protective mortar
with 19 mm Elastomer insulation

A 3D cutaway diagram of a shower stall assembly. The diagram shows the internal structure, including the wooden frame, the grey shower pan, and the yellow insulation. A blue drain pipe is visible at the bottom center. A white panel is mounted on the right side, and a red and blue pipe are connected to it. A small square window is visible on the left wall. The diagram is labeled with letters A through J, which correspond to the labels in the adjacent table.



FSAeco fire damper air vents FLI-VE90

- No annual inspection requirement
- Small installation depth
- Easy installation

For product details, see page 40



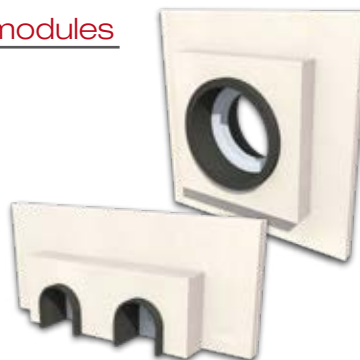
FIREREV access panels

- Fire, sound and smoke protection
- Rapid availability
- Choice of various visible covers



PREMO RORCOL pipe penetration seal modules

- Custom-made
- Defined interface between building services and drywall construction
- With integrated sealing level
- For plastic pipes up to Ø 110 mm and multi-layer composite pipes up to Ø 26 mm



System RORCOL pipe collars

- For combustible and non-combustible pipes
- For cable bundles up to Ø 100 mm
- No spacing

For product details, see page 28



Product description

FIREREV GPS
EI90/EI60/EI30

FIREREV VKW
EI90/EI60/EI30

FIREREV VKS
EI90/EI60/EI30

VKS - gypsum fibreboard with square-head bolt lock and hinges

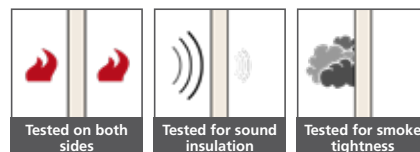
Special features

Tested on both sides according to EN 1364-1

Classified according to EN 13501-2

Tested for sound insulation according to EN ISO 10140

Tested for smoke tightness according to EN 1634-3

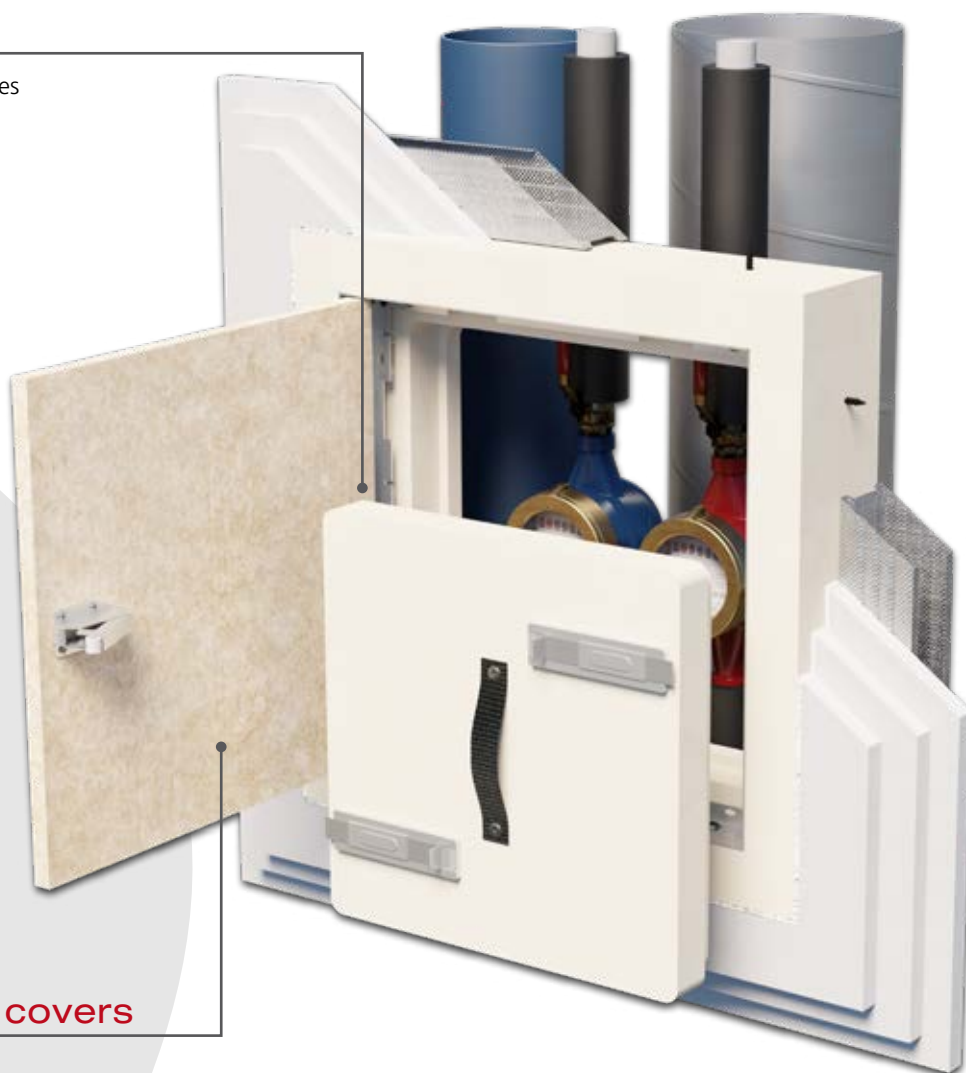


Safe fire closure

- Tested for fire safety on both sides
- Tested for sound insulation
- Easy to use

Soundproof

Smoke-tight



Variety of visible covers

- Plaster surface
- Metal surface
- Snap closure
- Square-head bolt lock

Product description

PREMO® RORCOL

PREMO® RORCOL OMEGA



PREMO® RORCOL K

“The defined interface between plumbing and drywall construction.”

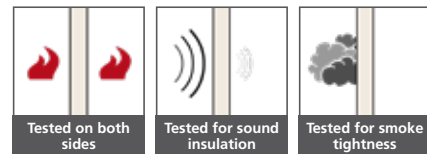
Special features

Tested on both sides according to EN 1366-3

Classified according to EN 13501-2

Tested for sound insulation according to EN ISO 10140

Tested for smoke tightness according to EN 12153 and EN ISO 9972



Defined interface

- Defined interface between building services and drywall construction
- Fire, smoke and sound insulation fulfilled in one work step
- Less coordination work involved in the construction process

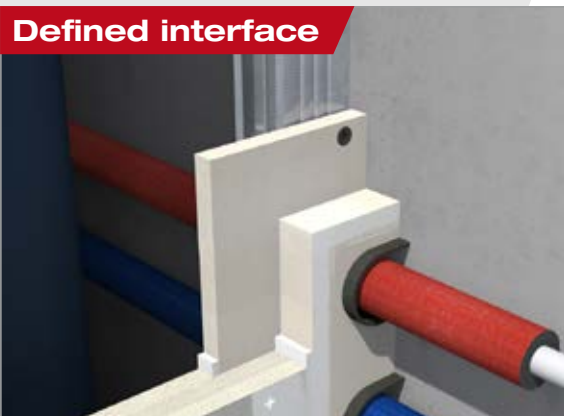
Soundproof

Smoke-tight

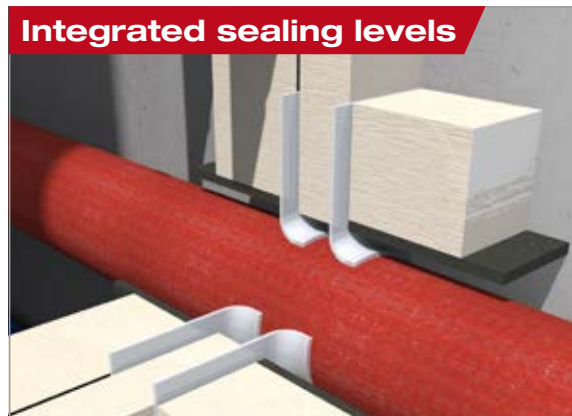
Integrated sealing levels

- Smoke-tight seal to the ductwork
- No additional sealing work
- Acoustic decoupling of the ductwork

Defined interface



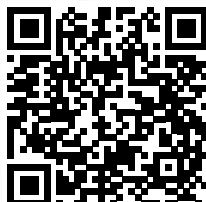
Integrated sealing levels



REFERENCES



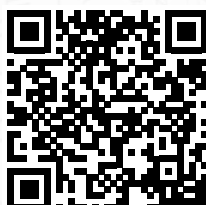
Fire protection knows no compromises
Preventive fire protection for buildings



Penetration seals for pipes and cables
AIR FIRE TECH System RORCOL



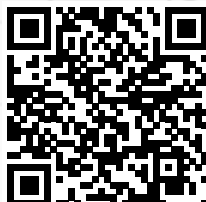
FLI-VE und FLI
Fire damper air vents for ventilation ducts based on intumescent materials





FIREREV access panels

Fire protection in drywalling



INLAP and INLAP-ST fire dampers



You can find more documentation at www.airfiretech.at

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Fire protection in timber construction, June 2025

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Air Fire Tech Brandschutzsysteme GmbH

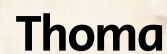


Fire protection systems

Hanuschgasse 1 / Top 4A
2540 Bad Vöslau
Austria

T: +43 1 982 01 74-0
F: +43 1 982 01 74-930
E: office@airfiretech.at

In collaboration with:



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