Made in Austria

AIR FIRE TECH

Fire protection systems

Fire protection in timber construction

Sanitary – Heating – Ventilation – Electrical

HOLZ FORSCHUNG AUSTRIA

KLH

MAYR MELNHOF HOLZ

MMK Holz und Beton verbinden.

StoraEnso

HASSLACHER NORICA TIMBER From wood to wonders.

THEURL AUSTRIAN PREMIUM TIMBER®

binderholz

Thoma

www.airfiretech.at

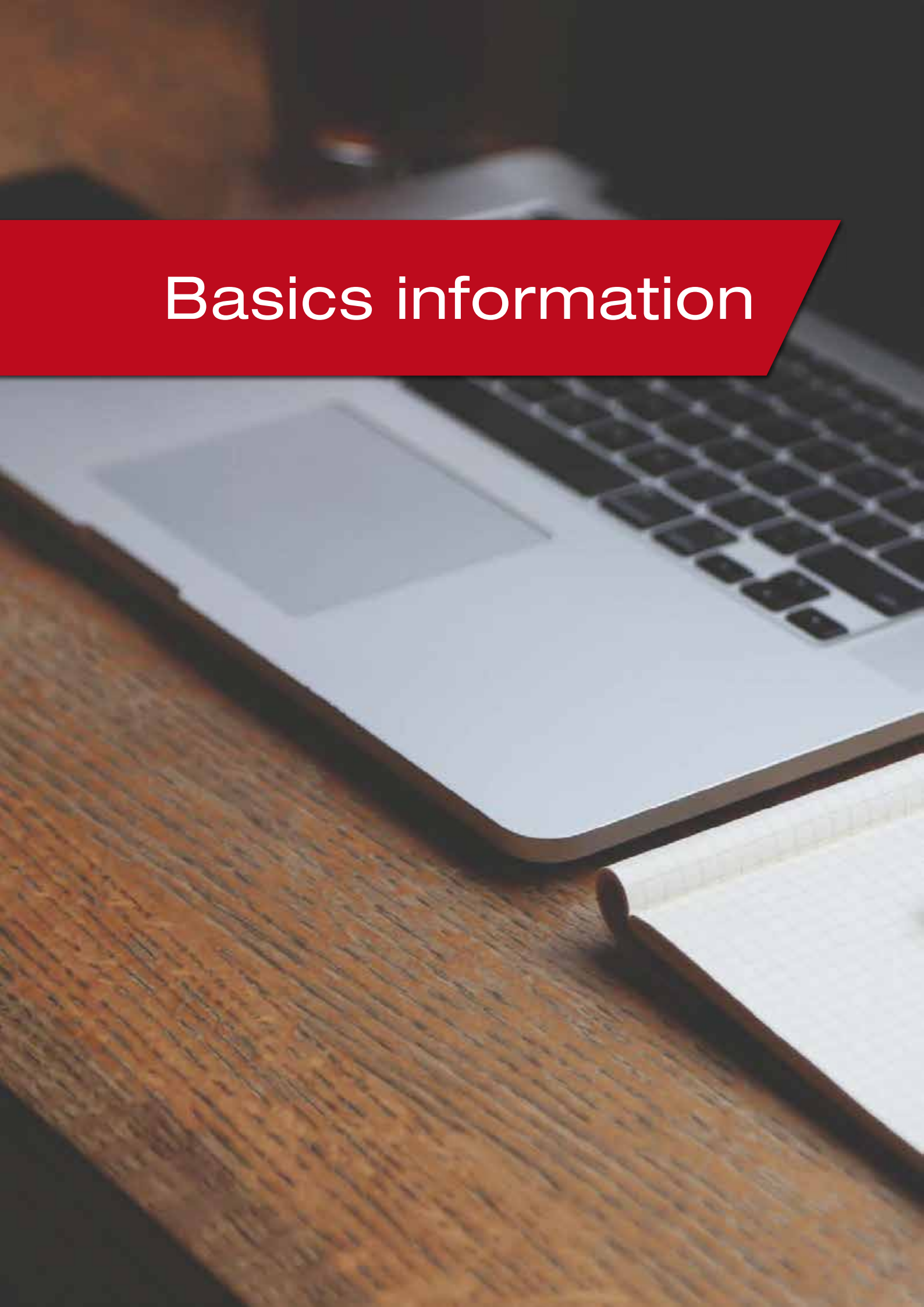
Good reasons to choose AIR FIRE TECH

Made in Austria

- *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*

Contents

Basics information




PRECISE V7

LABELLING OF CONSTRUCTION PRODUCTS

Construction Products Regulation

Labelling and approval of construction products – No. 305/2011 – March 2011

The Construction Products Regulation requires manufacturers of construction products to draw up a **Declaration of Performance (DoP)** for each product for which a **harmonised standard (hEN)** has been announced in the Official Journal of the European Union and for which the coexistence period stated in this announcement has expired. The same applies to construction products for which a **European Technical Assessment (ETA)** has been issued.

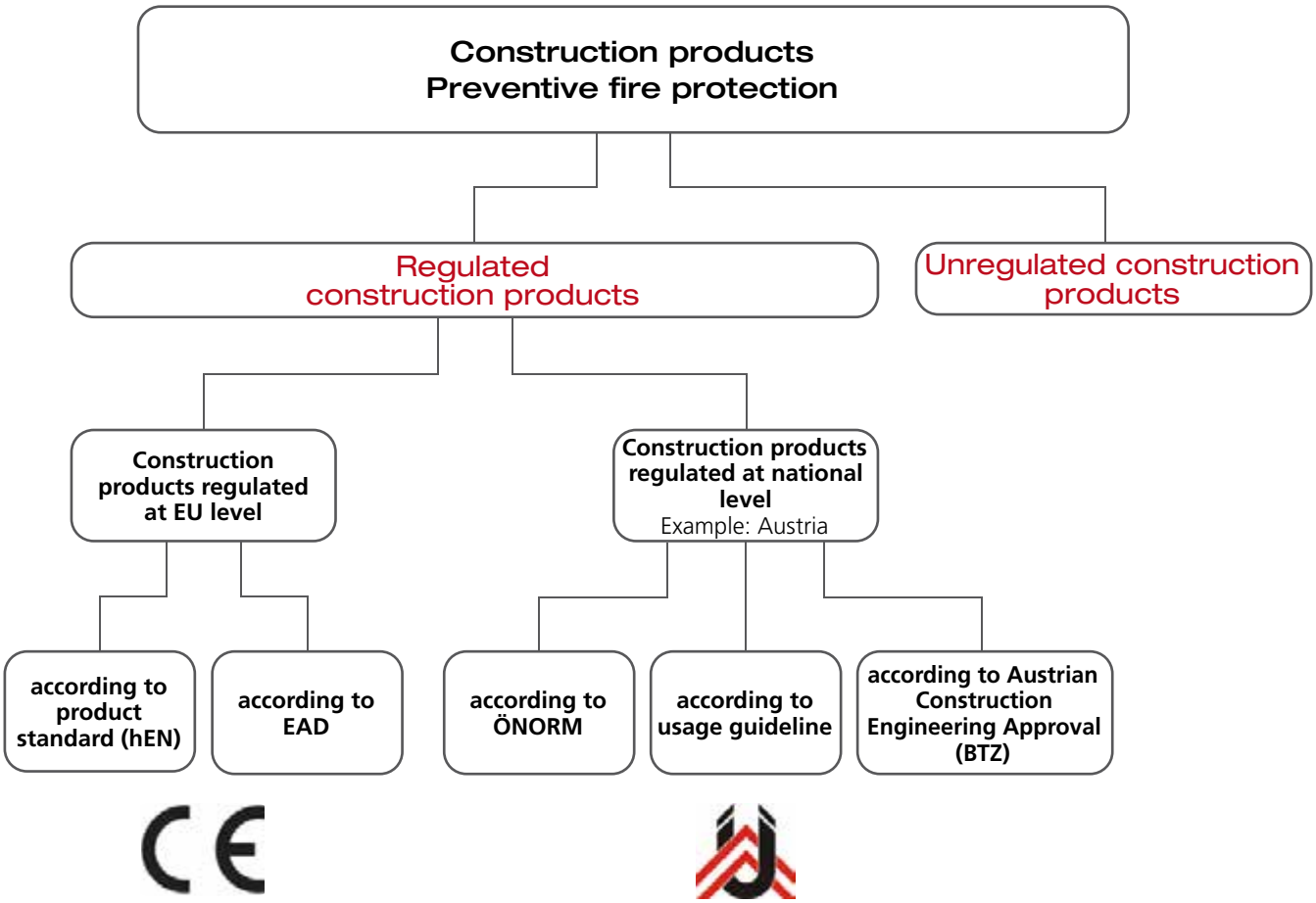
Regulated construction products

The EU Construction Products Regulation governs the marketing of construction products in the European single market. Construction products with harmonised standards (hEN) generally require the CE marking. EU member states can continue to maintain national labelling and approval systems for construction products for which no harmonised standard yet exists and for which no European Technical Assessment (ETA) has been issued.

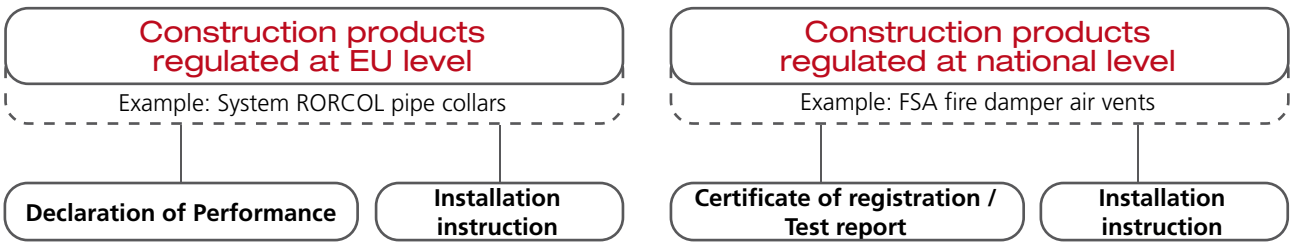
Unregulated construction products

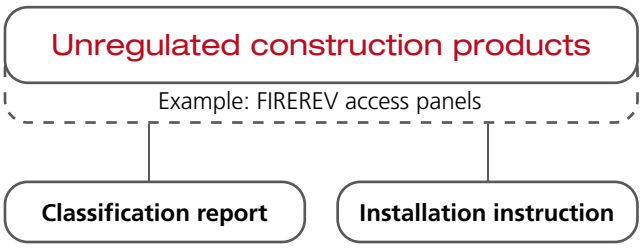
Rather than encompassing all construction products, the national labelling and approval systems only include those for which rules of use are deemed necessary. No explicit rules of use apply to all other construction products, although the relevant national provisions of building law must be complied with.

Labelling



Evidence required from the manufacturer





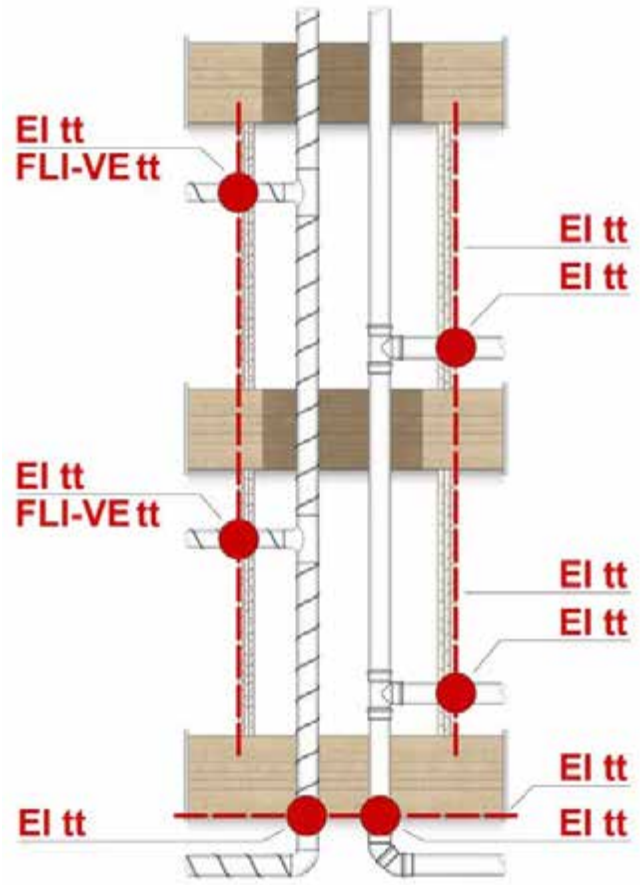
FIRE PROTECTION

Types of penetration seals

When sealing off installation shafts, one of two types of penetration seal will be used depending on which separating element is subject to the technical fire protection requirements:

Shaft type A

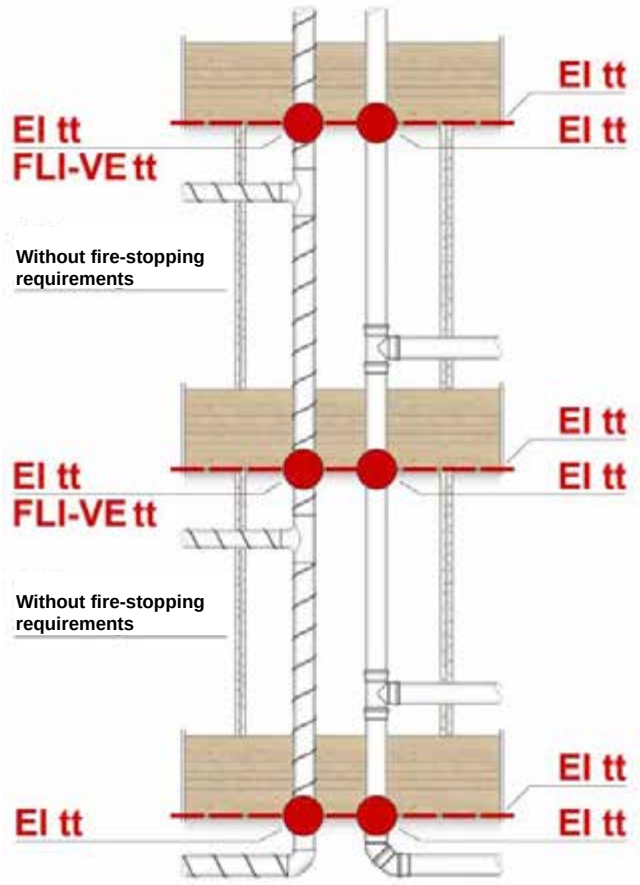
Vertical penetration seal



- The vertical shaft is contained along its entire length using fire-resistant dividing walls.
- The penetration seals must guarantee at least the same fire resistance time as the shaft wall.

Shaft type B

Horizontal penetration seal



- The openings in and around the storey floors must be sealed off according to the fire resistance time guaranteed by the adjacent floor.
- May only be used if only one flat or operating unit is being supplied on each storey.

The national building regulations applicable locally must be complied with.

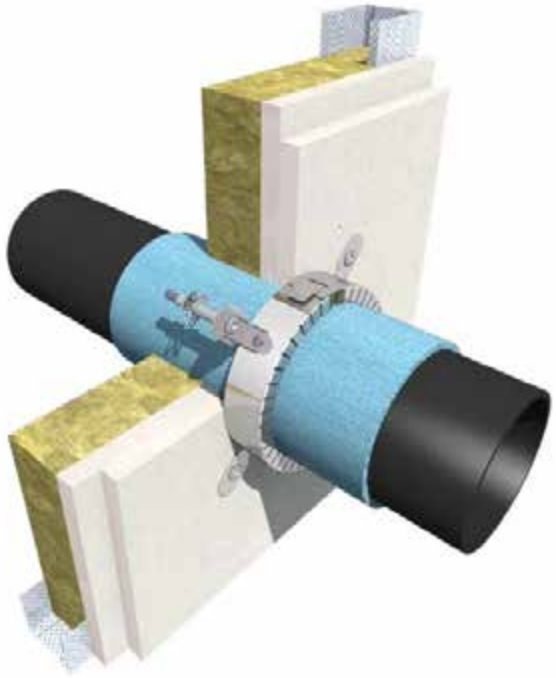
Requirements of drywall construction systems

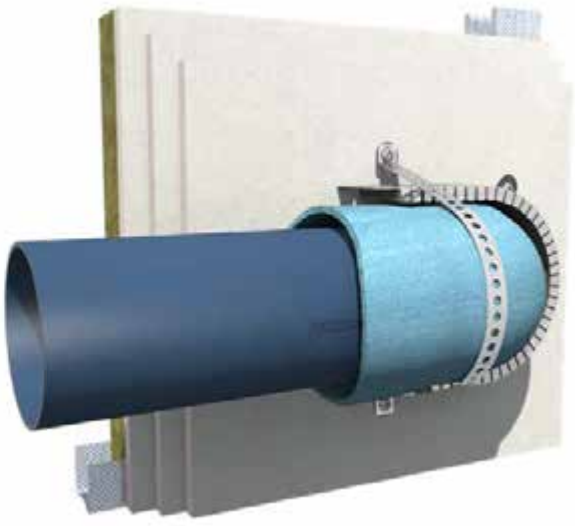
Fire protection requirements

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 joins 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.





Not all plasterboard is the same

As fire protection seals have generally not been tested and approved for installation in all types of plasterboard, attention must be paid to which board is being used to manufacture the drywall construction system:

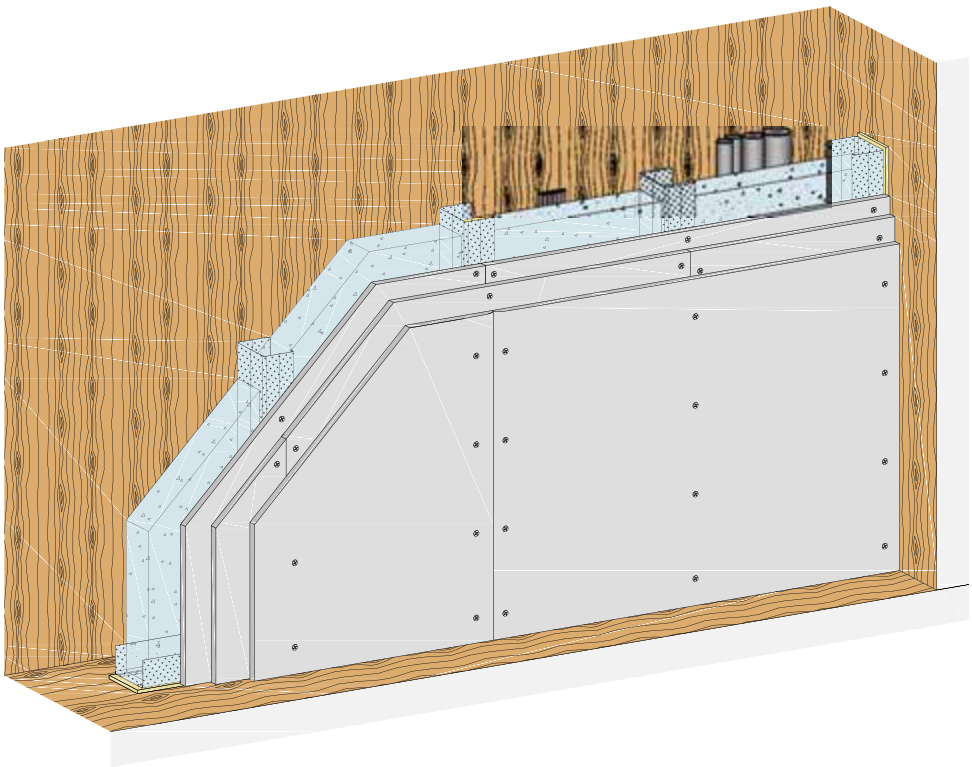
- **Plasterboard according to EN 520**
  Plasterboard covered with paperboard on both sides, e.g. fire-resistant plasterboard (DF/DFR)
- **Fleece-reinforced plasterboard according to EN 15283-1**
  Plasterboard with embedded glass-fibre mesh, e.g. GM-FH2 Glasroc F Ridurit
- **Plasterboard according to EN 15283-2**
  Plasterboard comprising a gypsum core reinforced with cellulose fibres, e.g. GF-C1-I-W2 Rigidur H

NOTE

The following applies to shaft walls:
penetration seals that are only approved for installation in plasterboard according to EN 15283-1 (fleece-reinforced plasterboard) may not be used in conjunction with plasterboard according to EN 520 (drywall boards) without further investigation. – cf. test standard EN 1366-3.

The types of plasterboard permitted are indicated in the relevant European Technical Assessment (ETA) and Declaration of Performance (DoP).

The national building regulations applicable locally must be complied with.



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.

Rigips SAINT-GOBAIN

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.

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

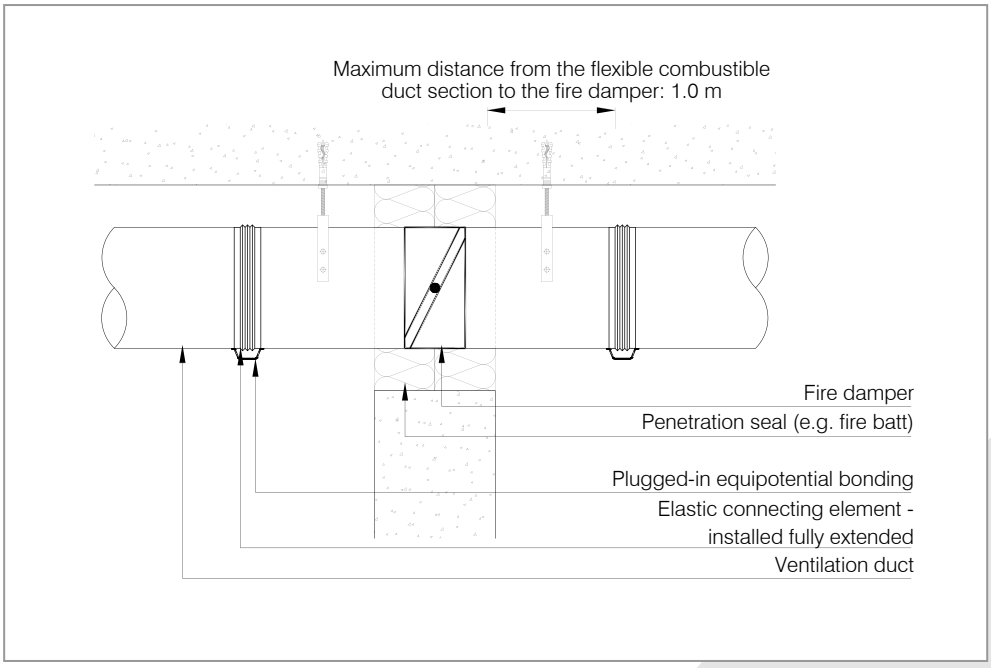
– to rigid non-load-bearing walls (e.g. aerated concrete) or

– 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.

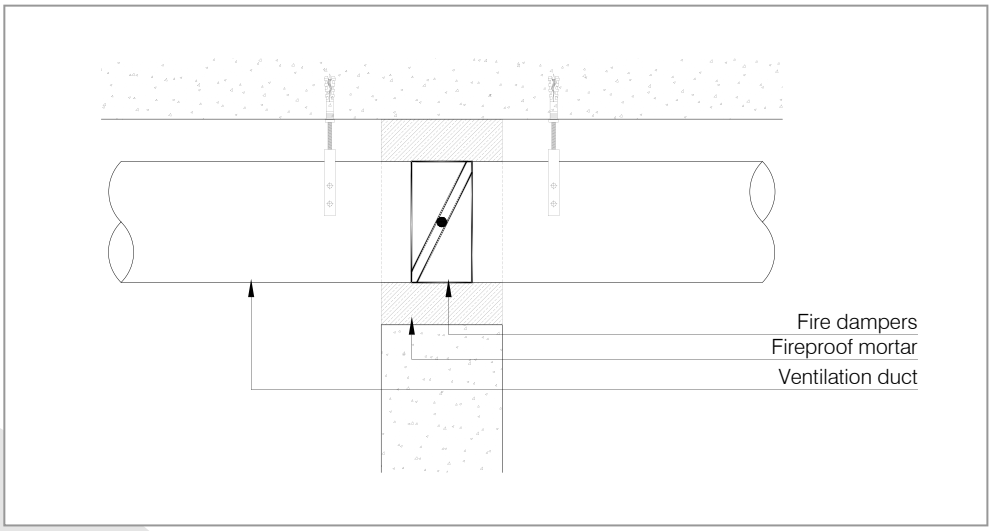
The use of flexible duct sections or elastic connecting elements is suitable for this without further provision of evidence.

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.

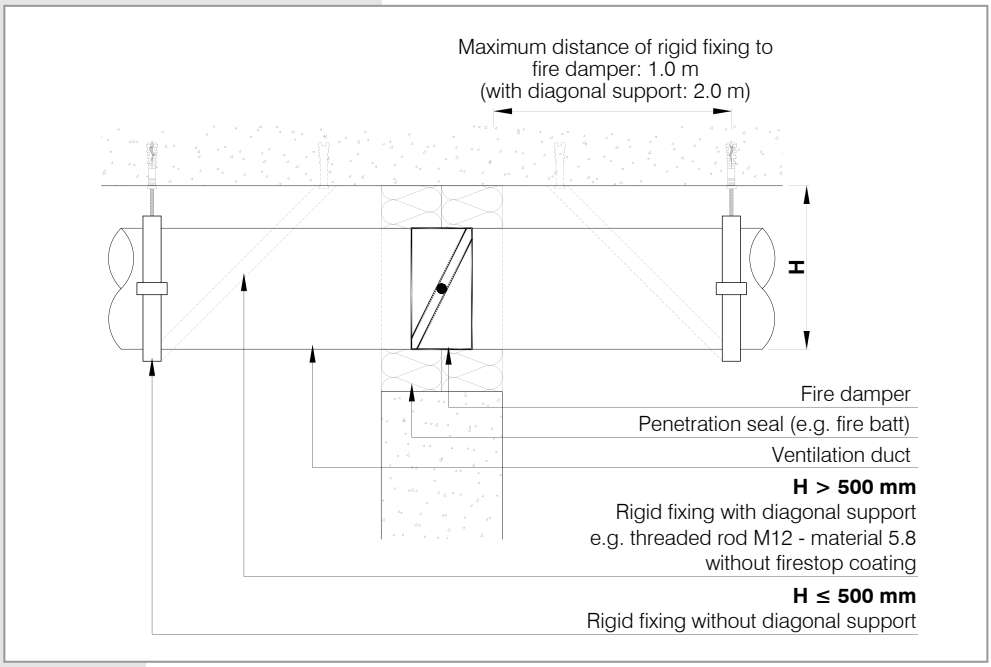


Installation without expansion compensation – for rigidly fixed air ducts

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.



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.

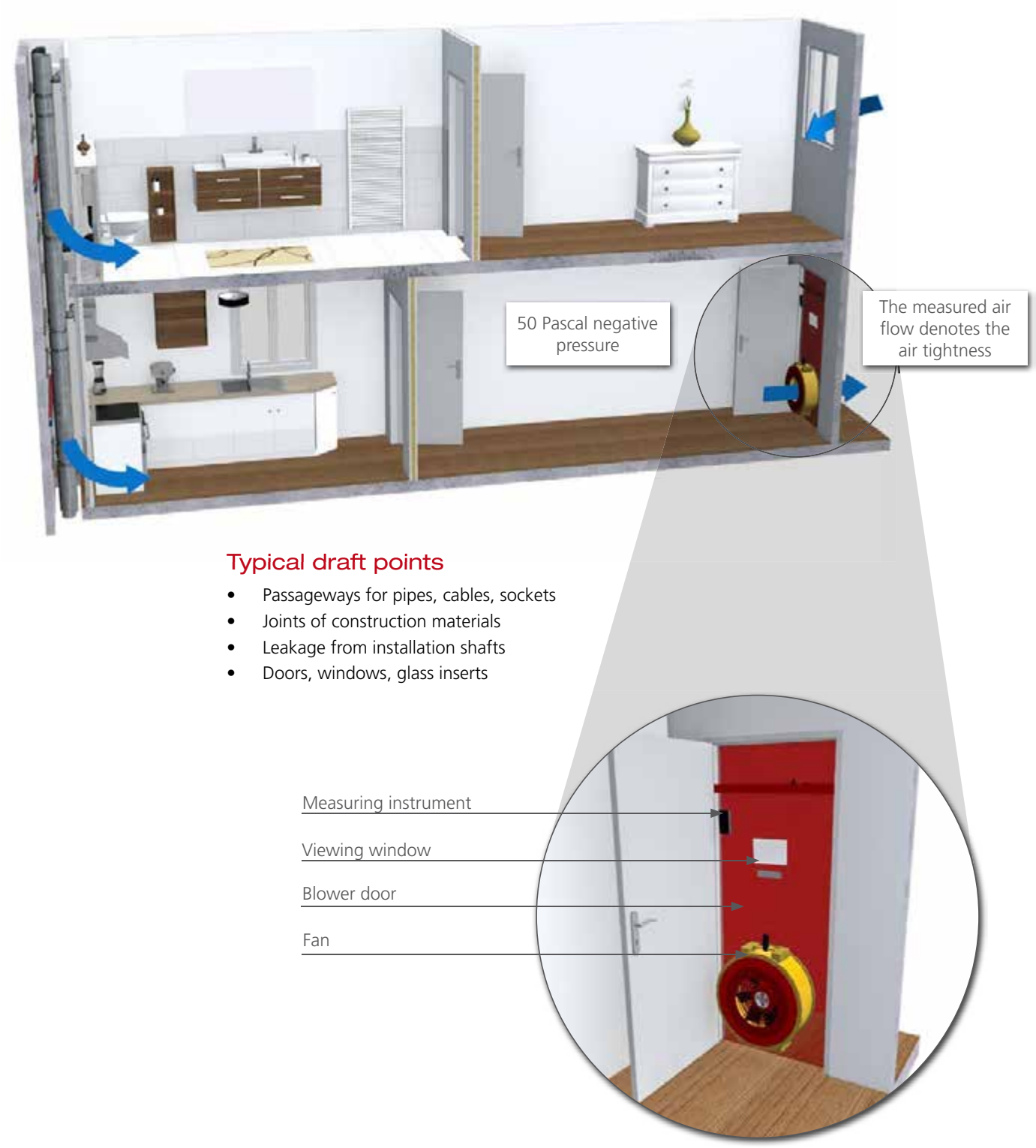
n_{50} = air exchange rate at a differential pressure of 50 Pa

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

FIRE TESTS

Before they are sold to customers, our products undergo a variety of fire tests and checks. Our continuous research and development work provides our customers with a large variety of application options for our firestop products in modern building installations. You can benefit from our in-house research and development and the expertise that our experts have gained from more than 20 years in the field of fire protection.

Tests according to EN 1366-2 / EN 1366-3

Fire resistance tests for installations

EN 1366 - Part 2: Fire dampers

- September 2015

This European Standard specifies a method for determining the fire resistance performance of fire dampers installed in fire-resistant, space-enclosing building elements and intended to prevent fire, smoke and gases spreading at high temperature. This European Standard applies in conjunction with EN 1363-1.

EN 1366 - Part 3: Penetration seals

- May 2009

Test standard EN 1366-3 specifies the test methods and criteria for assessing the ability of a penetration seal to maintain the fire resistance of a space-enclosing building element at the point where one or more pipes or cables are fed through.

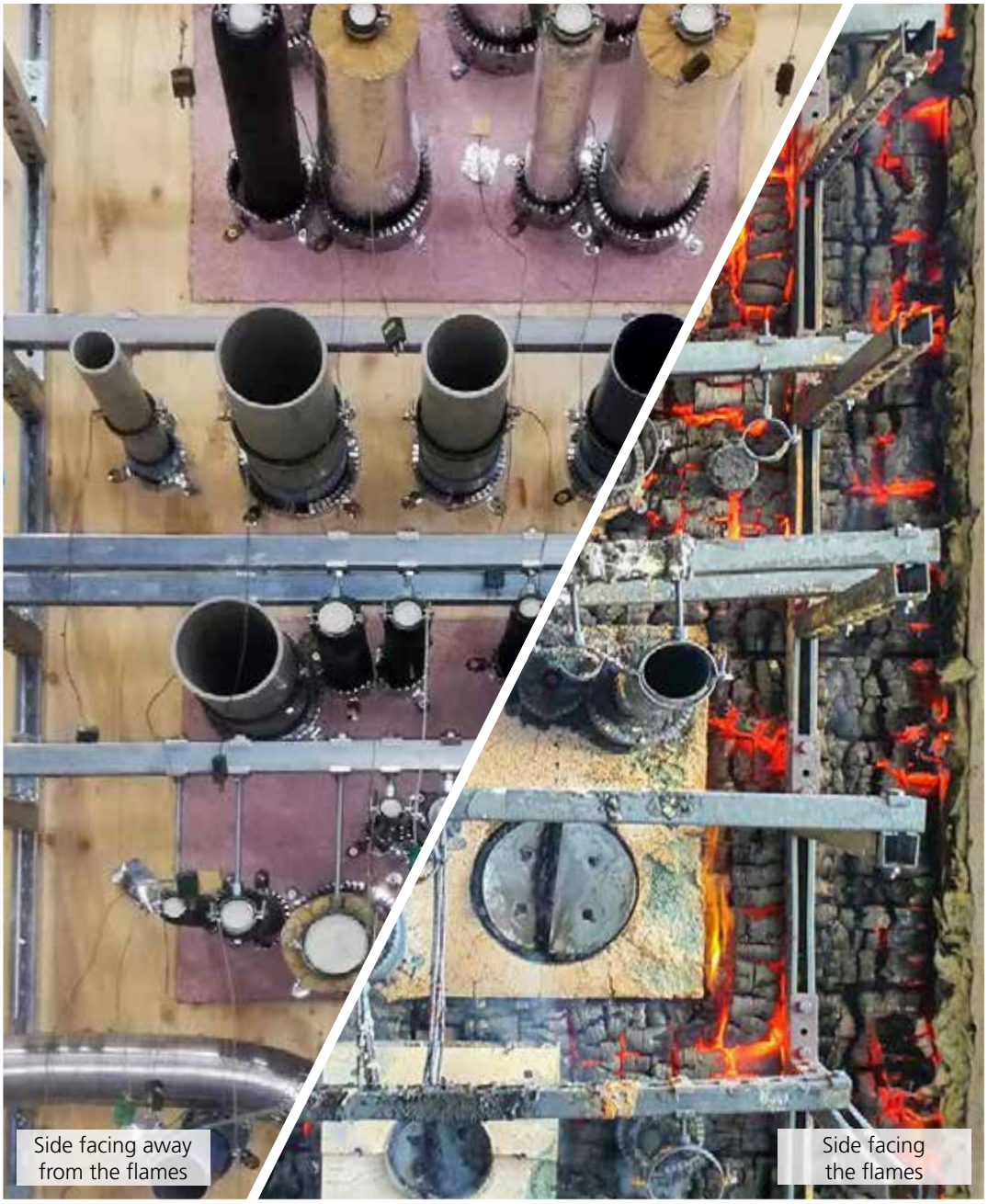
Extended mixed (combined) penetration seal TIROTECH® in a cross-laminated timber floor/ceiling after a fire test according to EN 1366-2 and EN 1366-3

Combined penetration seals / 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 IS BECOMING INCREASINGLY POPULAR

Wood in construction

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.

Building with wood is environmentally friendly. Wood grows back and can be disposed of or recycled in an environmentally friendly manner when a building is demolished. For a forest-rich country like Austria, dealing with all aspects of this issue professionally seems an obvious step. The same applies to fire protection.

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 58 →

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 72 →

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 A[1], 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 96 →

NOT ALL WOOD IS THE SAME

Cross-laminated timber

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.

Standard supporting construction or specific supporting construction?

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.

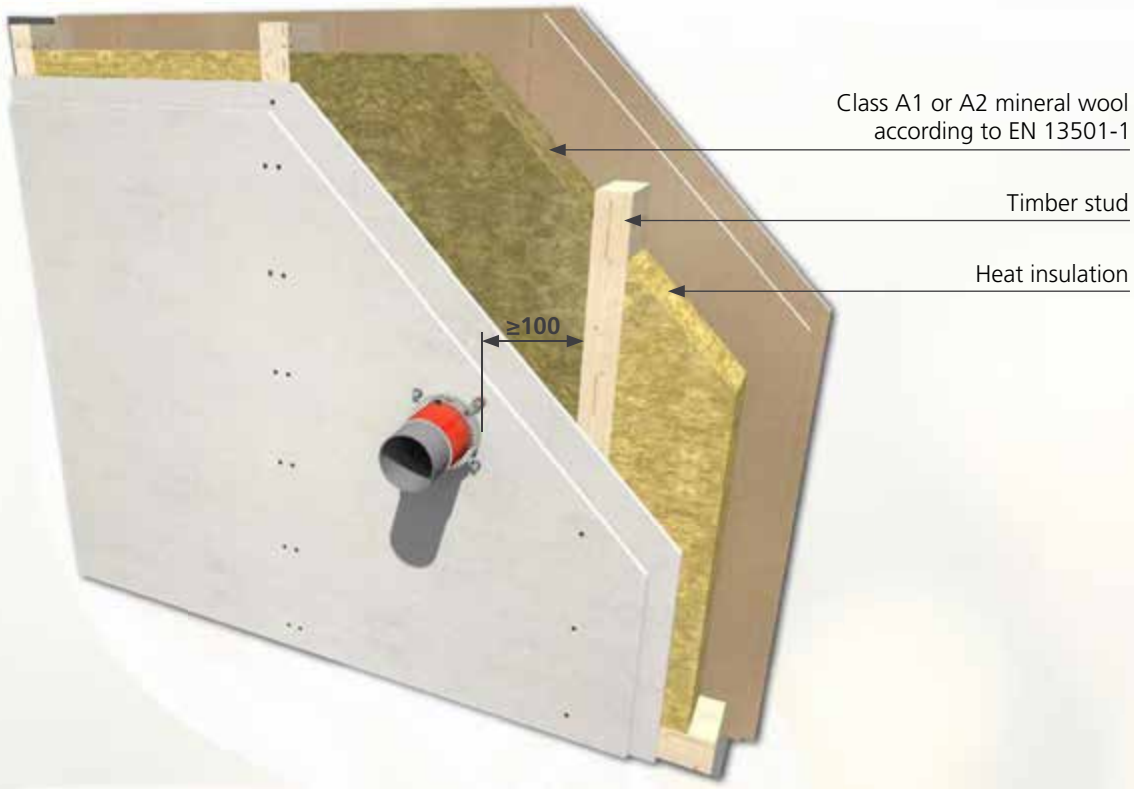
Every manufacturer of cross-laminated timber has its own European Technical Assessment (ETA) for its timber structures. **According to EN 1366-3:2021 point 7.2.1,** these are considered to be **specific supporting constructions**. Therefore, single and mixed penetration seals must be tested with the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

NOTE

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 studsprovided 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

MILESTONES

2008
In-house fire testing
with cross-laminated timber

2008
First large-scale fire test with
cross-laminated timber

2010

2011
First fire test with
FLI-VE fire damper air vents in
cross-laminated timber

2012
First fire test with INLAP fire dampers and
RORCOL pipe collars in cross-laminated timber

2015
Expansion of the series of
tests with fire dampers and
pipe collars in walls and
floors made of
cross-laminated timber

2012
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:

HOLZ FORSCHUNG AUSTRIA

KLH

MAYR MELNHOF HOLZ

MMK Holz und Beton verbinden.

StoraEnso

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

THEURL AUSTRIAN PREMIUM TIMBER

binderholz

Thoma

2019

First fire test with TIROTECH® protecitve 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


LOADING...

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".

Made in Austria

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

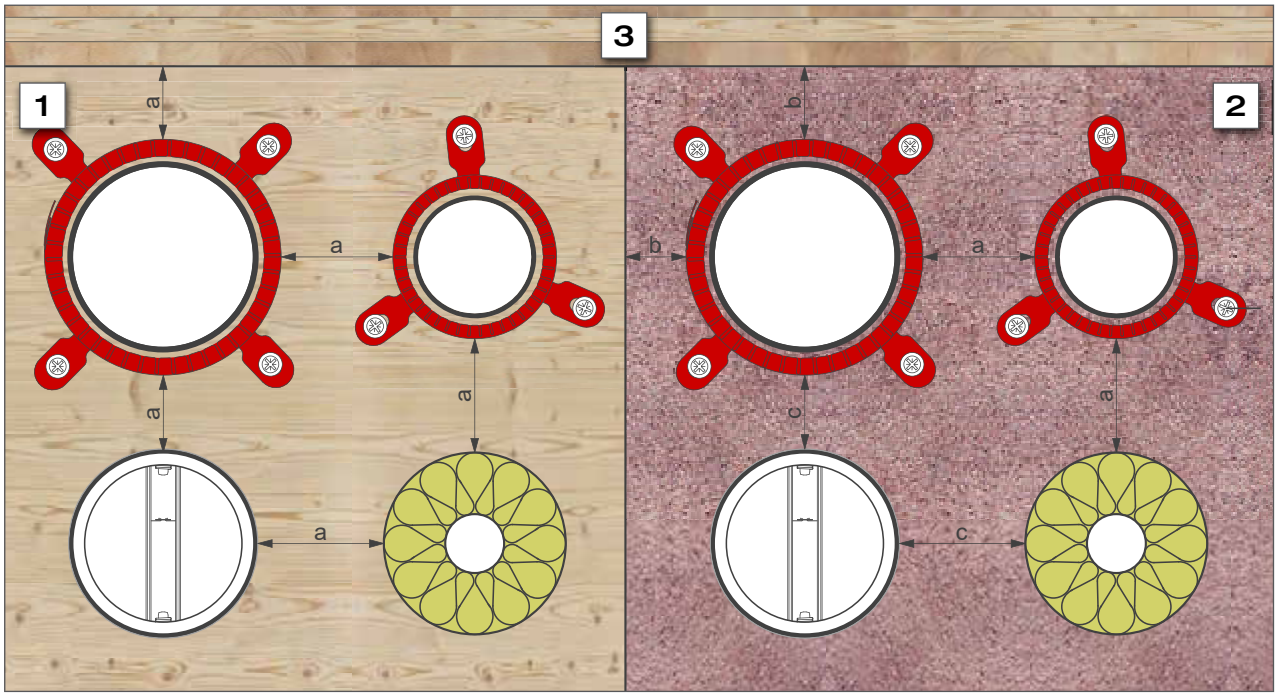
- Makes it easier to insert the pipe collar in formwork

Twistable mounting lugs

- For fitting into tight spaces

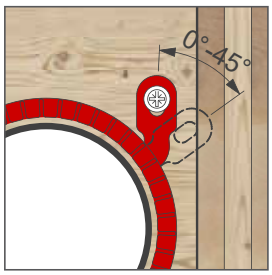
CE 1139
Air Fire Tech Brandschutzsysteme GmbH Stranzenberggasse 7b/1/2 1130 Vienna, AUSTRIA
13
1139-CPR-0523/13
ETA-13/0758
EAD 350454-00-1104
DOP 2020/RORCOL
Pipe penetration seal "Air Fire Tech System RORCOL" Use category Y_1
For other relevant characteristics, see ETA-13/0758

Working clearances



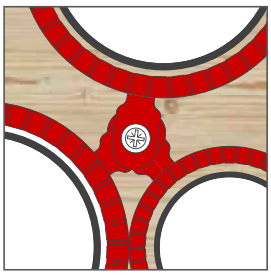
Legend	
1	Cross laminated timber wall or floor
2	Mixed penetration seal TIROTECH®
3	Adjacent seperating element
a	Minimum distance 0 mm
b	Minimum distance 30 mm
c	Minimum distance 50 mm

Twistable mounting lugs



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

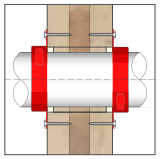
Common screw fixing



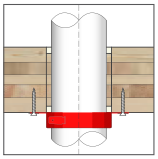
Up to three mounting lugs of three adjacent pipe collars can be fixed with just one screw fixing

Application areas

Single penetration seals

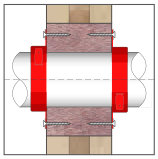


Seite 59

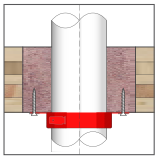


Seite 65

Mixed penetration seals



Seite 75



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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	Omega application	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	Omega application	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

TIROTECH® - FIRE PROTECTIVE MORTAR

according to ETA-17/0586

Advantages

- Weight 10 kg / 30 litre bag
- High adhesive properties
- Rapid setting
- High yield
- Easy to apply
- Moisture-resistant

Article number		
Art. no.	Match code	Contents
9900950	BSM/S30	30 litres

Installation video: TIROTECH®

Product description

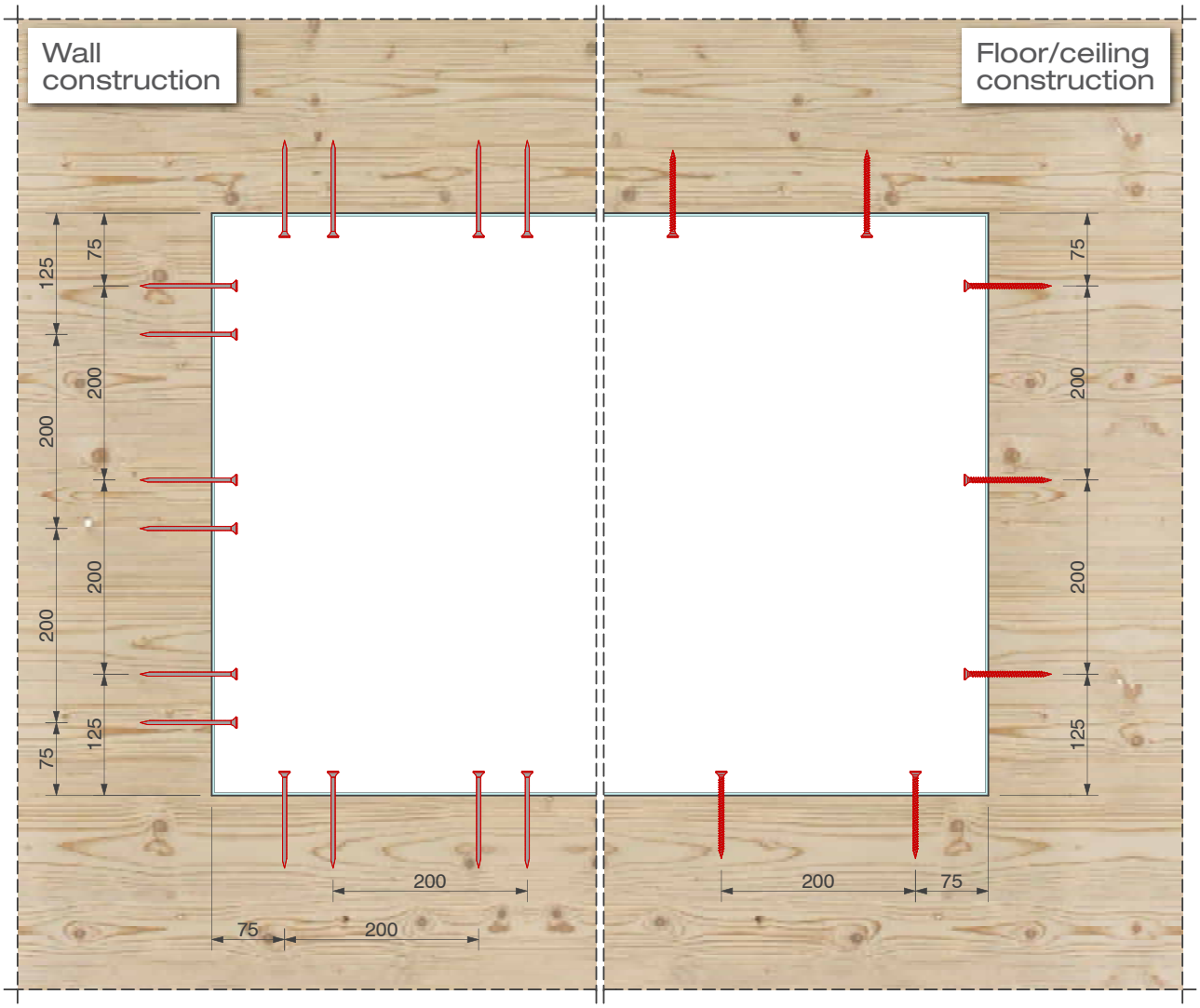
TIROTECH® fire protective mortar is a lime-cement bound lightweight mortar with polystyrene aggregates. The resulting very low dry bulk density facilitates transport and application.

Properties

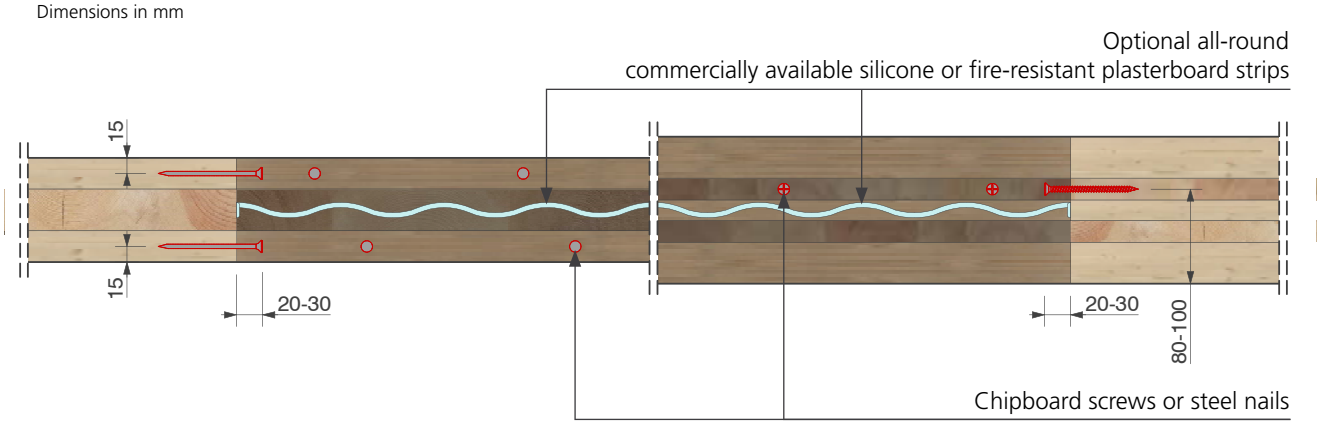
TIROTECH® - Fire protective mortar			
	Flexible walls Thickness ≥ 100 mm	**Rigid walls** Thickness ≥ 100 mm	**Floors** Thickness ≥ 140 mm
Maximum penetration seal size	1000 x 600 mm	1200 x 1000 mm	1200 x 800 mm or 820 x 8200 mm
Minimum mortar thickness	100 mm		140 mm
Dry bulk density	450 kg/m³		
Use 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		

Application

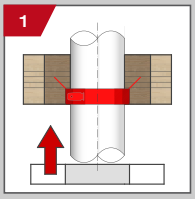
Before applying the TIROTECH® fire protective mortar, the pipe and/or cable must be checked with regard to the Declaration of Performance (DoP). The reveal of the recess must be solid, dry and free from any dust or grease. Due to the light weight and the consistency of the fire protective mortar, roughly 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

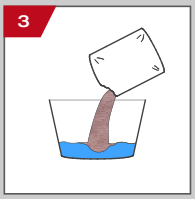


Attach formwork
(e.g. EPS insulation board)

Insert pipe collar

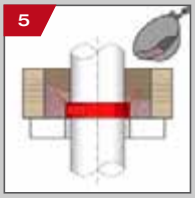
Prepare mortar trough (min. 50 litres)

Fill with clean water,
approx. 5 litres / bag

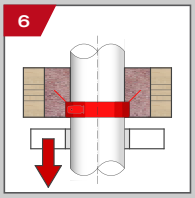


Add total bag contents of
TIROTECH® - Fire protective mortar

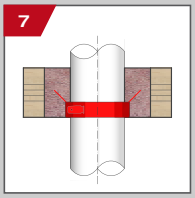
Mix with stirrer



Apply immediately after mixing

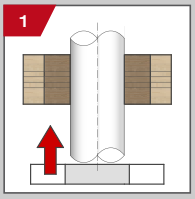


Remove formwork after setting



No additional fixing of the flush-mounted pipe collar required

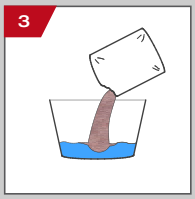
Installation with surface-mounted pipe collar



Attach formwork
(e.g. EPS insulation board)

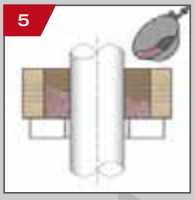
Prepare mortar trough (min. 50 litres)

Fill with clean water,
approx. 5 litres / bag

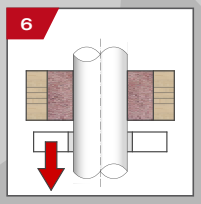


Add total bag contents of
TIROTECH® - Fire protective mortar

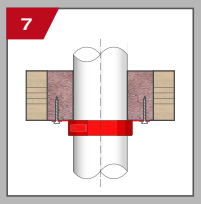
Mix with stirrer



Apply immediately after mixing



Remove formwork after setting



Install pipe collar

FIRE PROOF PIPE SECTION EI90

according to ETA-17/0734

Product description

FIRE PROOF is a precisely cut, non-flammable mineral wool pipe shell used as a pipe penetration seal for metal pipes. The shell is coated with a scrim-reinforced aluminium foil and packed in quantities convenient for construction sites. For ease of assembly, the shell has a slot on one side and a foil overlap so that the shell can be easily unfolded and assembled.

Foil overlap

- For easy assembly
- With self-adhesive strip

Short insulation length

- 1 m for small dimensions (≤ Ø54 mm)
- No subsequent cutting to size required

Standard insulation thicknesses

- Same EnEV insulation thicknesses as standard pipe shells

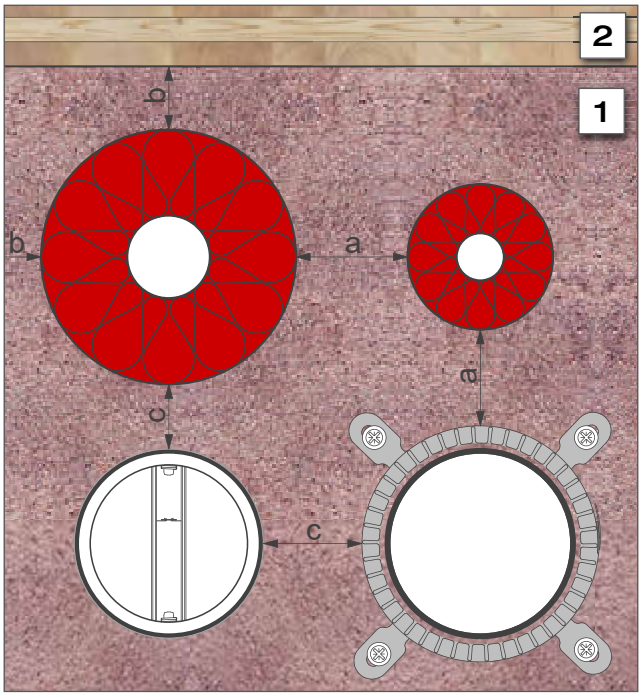
Application

For quick and easy installation, unfold FIRE PROOF, place it over the metal pipe and close the longitudinal seam by gently pressing it together. Remove the peel-off tape and press the overlap with the adhesive strip firmly into place. Smooth down with the squeegee for secure bonding. 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 adhesive aluminium tape with an overlap of at least 25 mm. Finally, fix the pipe shells with binding wire (6 windings / running metre).

Article number

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

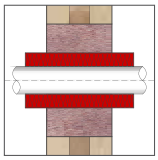
Working clearances



Legend	
1	Mixed penetration seal TIROTECH®
2	Adjacent seperating element
a	Minimum distance 0 mm
b	Minimum distance 30 mm
c	Minimum distance 50 mm

Application areas

Mixed penetration seals



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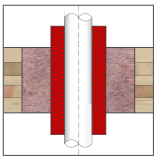

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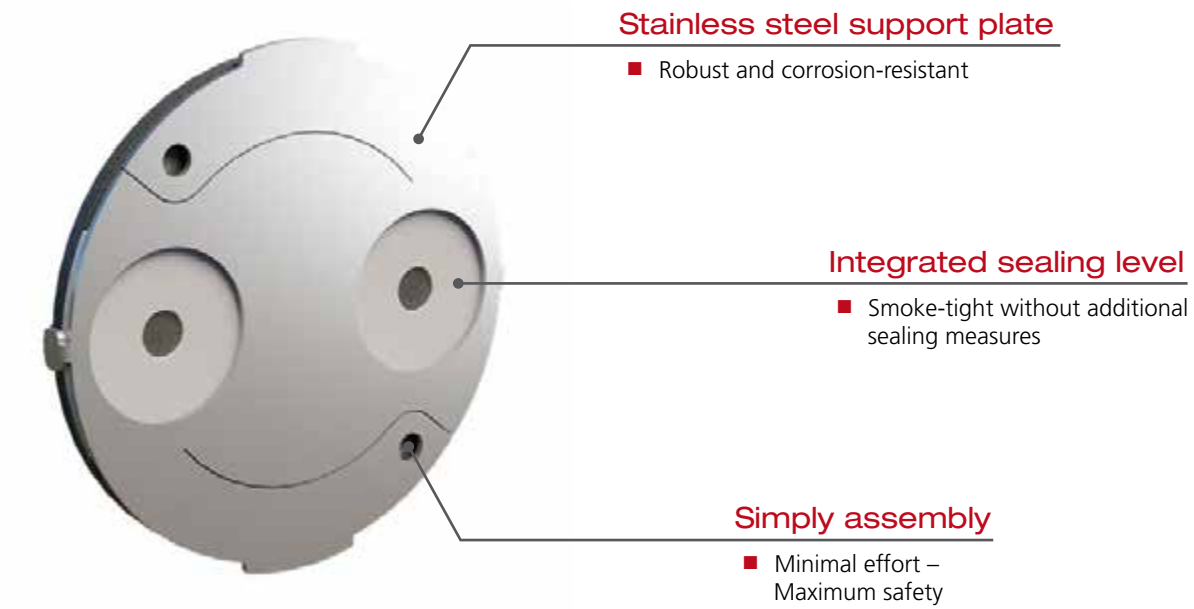
SMILE-E FIRE PROTECTION PLATE

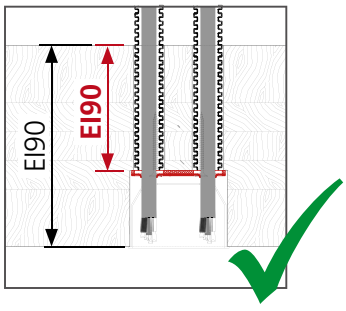
according to classification report MA 39 – 26-01173

Product description

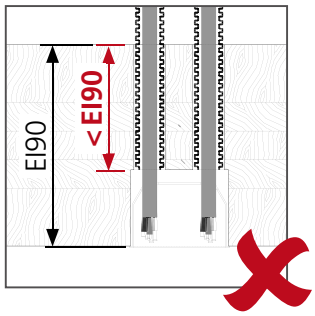
This innovative fire protection panel offers a compact and efficient solution for fire protection of flush-mounted boxes in cross-laminated timber structures. Thanks to its robust stainless steel backing plate and integrated silicone seal, it ensures a smoke-tight cable entry without any additional effort. At temperatures of 150 °C and above, the intumescent compound is automatically activated, sealing the passage and reliably filling the recess. Installed with just two drywall screws, the fire protection disc guarantees up to 90 minutes of maximum protection and the highest level of safety.



With SMILE-E

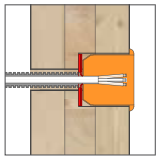


Without SMILE-E



Application areas

Single penetration seals



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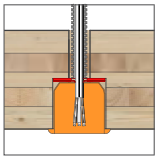

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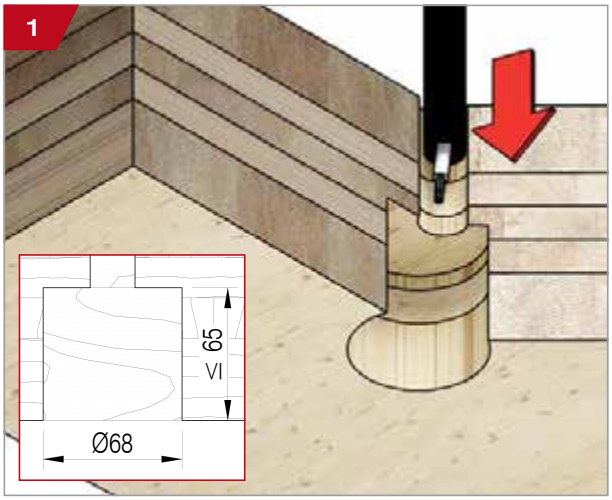
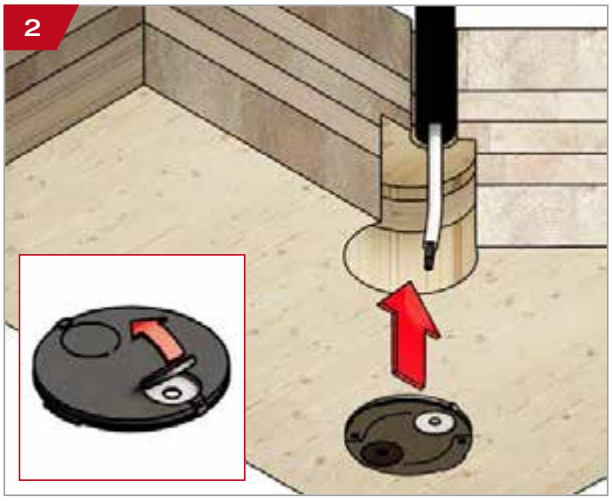
Installation steps

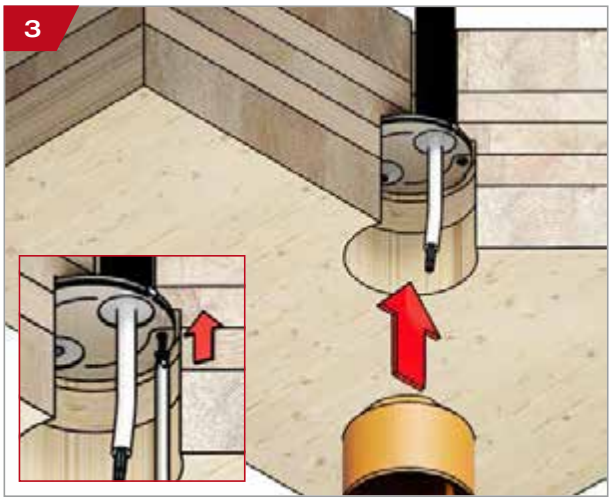


Insert the electrical conduit or cable into the recess of the junction box or equipment box.



Remove the vapour barrier along the perforated line provided by the manufacturer.

Feed the electrical conduit or cable through the **SMILE-E fire protection plate** and position the fire protection plate in the hole.



Secure **the SMILE-E fire protection plate using** two self-tapping screws ≥ Ø 3.5 x 45 mm.

Fit the junction box or equipment box.

INLAP EI90 FIRE DAMPERS

in accordance with EN 15650

Product description

INLAP fire dampers, compliant with EN 15650, provide reliable sealing of air ducts made from spiral-formed pipes, with or without insulation. Inside the powder-coated housing are the innovative, multi-layered stainless steel damper blades. In the event of a fire, the thermal release mechanism in the damper blades activates and closes off the cross-section of the ventilation duct.

INLAP

Small installation depth

- Space-saving and flexible to use

Multi-layer damper blade

- Secure sealing of the cross-section in the event of fire
- Low pressure loss

CE 1139
AIR FIRE TECH Brandschutzsysteme GmbH Stranzenberggasse 7b/1/2 1130 Vienna AUSTRIA
13
1139-CPR-1046/12
EI120(h_o,v_e,i↔o)S* EI90(h_o,v_e,i↔o)S *depending on separating element
INLAP
DOP 01/2020/INLAP
EN 15650:2010
Fire damper Fire damper EI120(h_o,v_e,i↔o)S EI90(h_o,v_e,i↔o)S

Article number – INLAP

Art. no.	Match code	Nominal size
2109100	INLAP/DN100	100 mm
2109125	INLAP/DN125	125 mm
2109160	INLAP/DN160	160 mm
2109200	INLAP/DN200	200 mm
2109250	INLAP/DN250	250 mm

INLAP-ST

Integrated duct connector

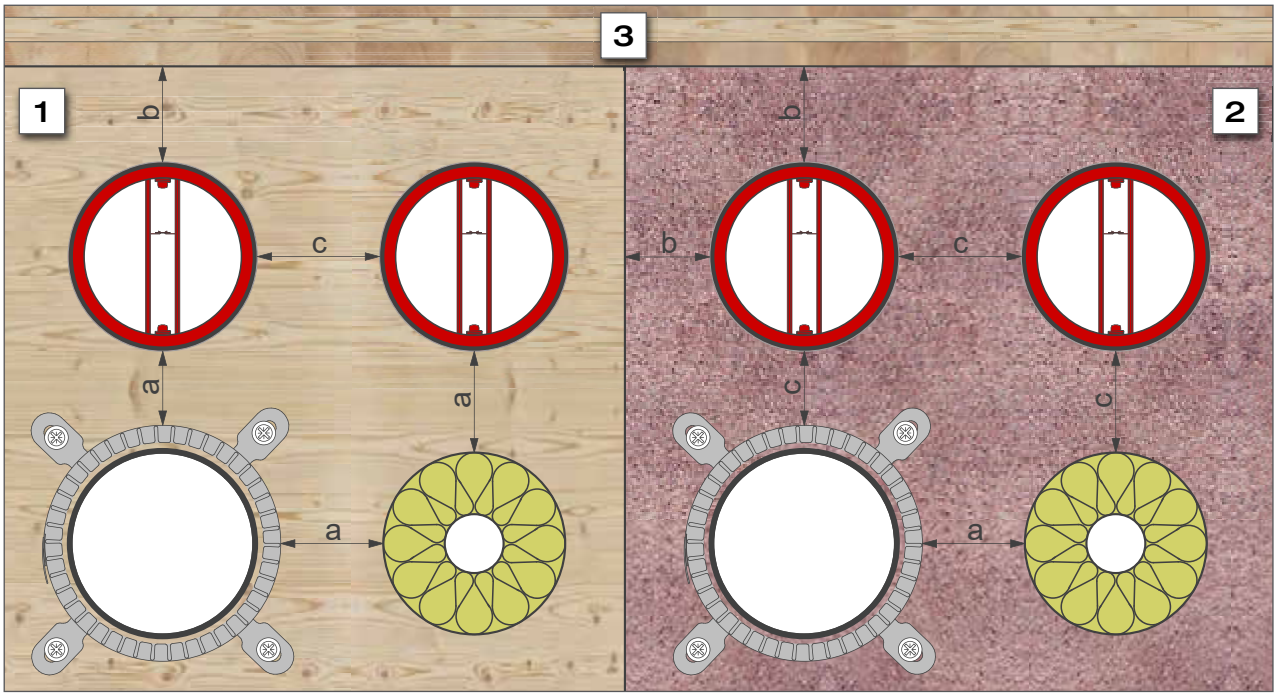
- For continuing pipelines

CE 1139
AIR FIRE TECH Brandschutzsysteme GmbH Stranzenberggasse 7b/1/2 1130 Vienna AUSTRIA
13
1139-CPR-1046/12
EI120(h_o,v_e,i↔o)S* EI90(h_o,v_e,i↔o)S *depending on separating element
INLAP
DOP 01/2020/INLAP
EN 15650:2010
Fire damper Fire damper EI120(h_o,v_e,i↔o)S EI90(h_o,v_e,i↔o)S

Article number – INLAP-ST

Art. no.	Match code	Nominal size
2109101	INLAP-ST/DN100	100 mm
2109126	INLAP-ST/DN125	125 mm
2109161	INLAP-ST/DN160	160 mm
2109201	INLAP-ST/DN200	200 mm
2109252	INLAP-ST/DN250	250 mm

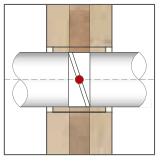
Working clearances



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

Application areas

Single penetration seals



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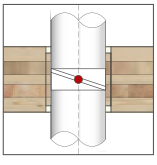

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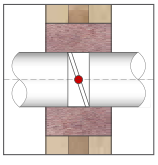
Combined penetration seals



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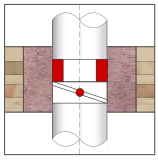

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FLI-VE90 FIRE DAMPER AIR VENTS FOR VENTILATION DUCTS

according to OIB application principle OIB-095.4-001/06-010

Product description

FSAeco fire damper air vents provide reliable sealing of air ducts made from spiral-formed pipes, with or without insulation. Inside the powder-coated housing are innovative, multi-layered stainless steel damper blades. In the event of a fire, the thermal release mechanism of the damper blades activates and closes off the cross-section of the ventilation duct.

FSAeco

Small installation depth

- Space-saving and flexible to use

Multi-layer damper blade

- Secure sealing of the cross-section in the event of fire
- Low pressure loss

R-14.3.3-25-7925 WIEN-ZERT

Article number - FSAeco		
Art. no.	Match code	Nominal size
1109100	FSAeco/DN100	100 mm
1109125	FSAeco/DN125	125 mm
1109160	FSAeco/DN160	160 mm

FSAeco-ST

Integrated pipe connection

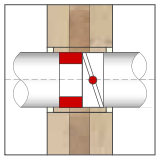
- For connecting pipes

R-14.3.3-25-7925 WIEN-ZERT

Article number - FSAeco-ST		
Art. no.	Match code	Nominal size
1109100	FSAeco-ST/DN100	100 mm
1109125	FSAeco-ST/DN125	125 × mm
1109160	FSAeco-ST/DN160	160 × mm

Application areas

Single penetration seal



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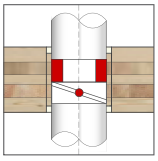

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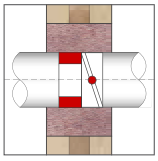
National penetration seal combination



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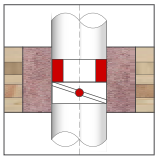

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National construction products

PRODEC

The free cross section PRODEC fire damper air vent, which does not restrict the cross-section, enables the fire-resistant sealing of air ducts made from spiral-seamed and plastic pipes, with or without insulation. Its installation has been tested and approved for use both in combination with the unique TIROTECH® fire protective mortar and with conventional mortar. Inside the corrosion-resistant housing is the multi-layered damper blade, which is secured by the thermal release mechanism. The free pipe cross section in this damper blade position allows for easy cleaning of the air duct R-14.3.3-25-7925 using rotating brushes.

Also suitable for plastic air ducts!

Free pipe 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

R-14.3.3-25-7925
WIEN-ZERT

NOTE

Due to the design and mode 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 - PRODEC		
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

MANUFACTURERS‘ CROSS-LAMINATED TIMBER CONSTRUCTIONS

The cross-laminated timber structures listed in these application areas refer to products from the following manufacturers:

KLH Massivholz GmbH

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

Mayr-Melnhof Holz Holding AG

MM crosslam according to ETA-09/0036

MMK Holz-Beton-Fertigteile GmbH

XC® living

Stora Enso Wood Products GmbH

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

HASSLACHER NORICA TIMBER

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

HASSLACHER Holding Ltd

HASSLACHER CROSS LAMINATED TIMBER
according to ETA-12/0281

THEURL
AUSTRIAN PREMIUM TIMBER®

Theurl Brothers Ltd

CLTPLUS according to ETA-20/0843

binderholz

Binderholz Building Systems Ltd

Binderholz Cross-laminated Timber (CLT) BBS
according to ETA-06/0009

Request for training in ETA TIROTECH® (ETA-17/0586).

Thoma

Thoma Holz Ltd

Holz100 according to ETA-13/0785

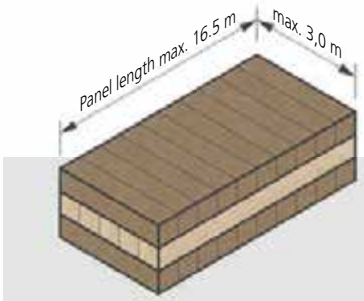
Request for training in ETA TIROTECH® (ETA-17/0586).

KLH Massivholz GmbH

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

Wall constructions

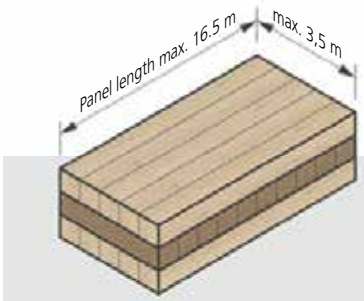
	Panel type		Plattenaufbau / Lamellenstärke [mm]					
Top layer perpendicular to panel direction (DQ)	60 mm	3s	20	20	20			
	70 mm		20	30	20			
	80 mm		30	20	30			
	90 mm		30	30	30			
	100 mm		30	40	30			
	110 mm		40	30	40			
	120 mm		40	40	40			
	100 mm	5s	20	20	20	20	20	
	110 mm		20	20	30	20	20	
	120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



3s DQ 5s DQ

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		



3s DL 5s DL 7s DL

5ss DL 7ss DL 8ss DL

Scan to find out more:
www.klh.at/

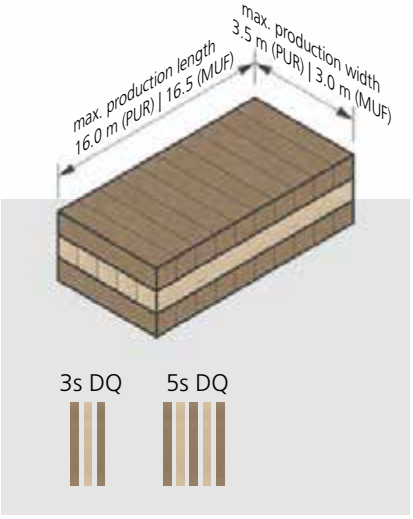
Calculation of the load-bearing resistance R(EI) in case of fire
www.klhdesigner.at/

Mayr-Melnhof Holz Holding AG

MM crosslam according to ETA-09/0036

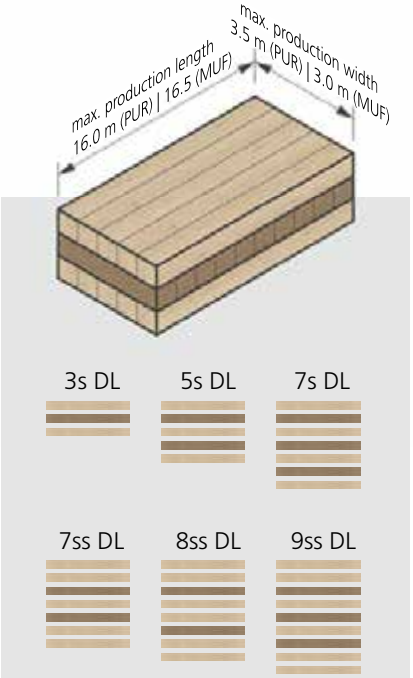
Wall constructions

	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	40
	240 mm		40	20	40	40	40	20	40
	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/

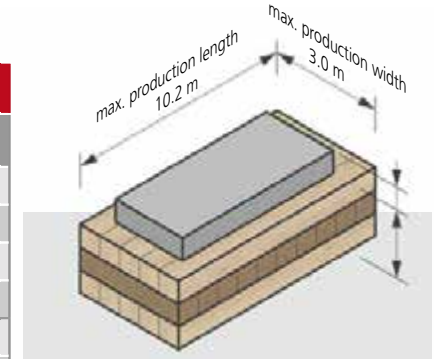
CLT dimensioning program

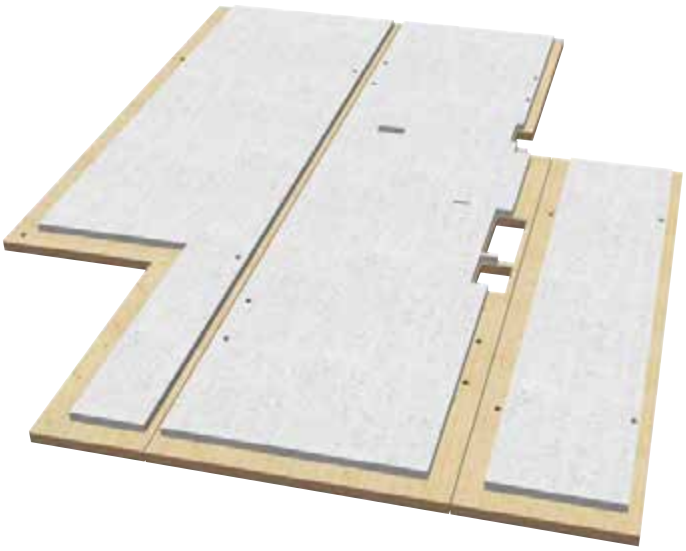
MMK Holz-Beton-Fertigteile GmbH

XC® living

Timber-concrete composite floor/ceiling construction

Designation	h_{Timber}	$h_{Concrete}$	Element height [mm]	Weight per unit area [kg/m²]
XC® living 120 | 80	120	80	200	250
XC® living 140 | 80	140		220	260
XC® living 160 | 80	160		240	270
XC® living 180 | 80	180		260	280
XC® living 120 | 100	120	100	220	300
XC® living 140 | 100	140		240	310
XC® living 160 | 100	160		260	320
XC® living 180 | 100	180		280	330
XC® living 200 | 100	200		300	340
XC® living 120 | 120	120	120	240	340
XC® living 140 | 120	140		260	360
XC® living 160 | 120	160		280	370
XC® living 180 | 120	180		300	375
XC® living 200 | 120	200		320	380
XC® living 180 | 140	180	140	320	420
XC® living 200 | 140	200		340	430





XC®living floor/ceiling elements (example configuration, assembled as per customer)

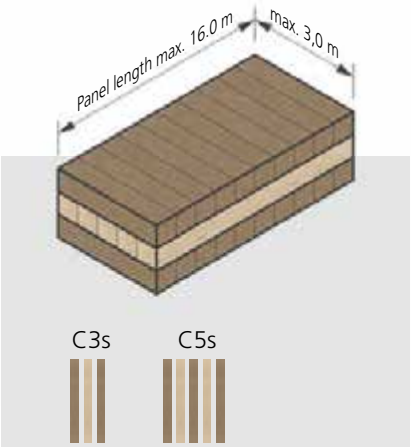
Scan to find out more:
www.holzbetonverbund.at

Stora Enso WP St. Leonhard GmbH

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

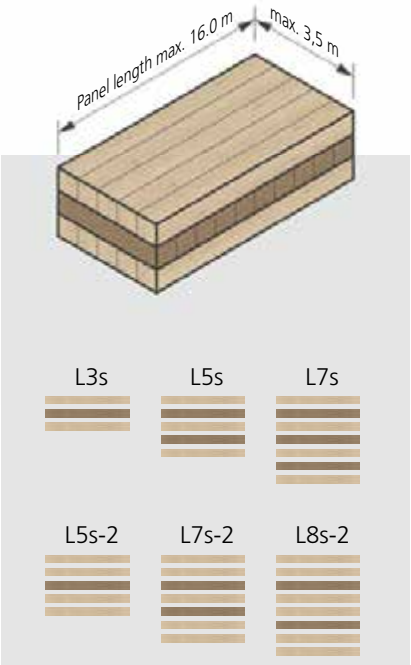
Wall constructions

	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	20	30
	200 mm		20	40	20	40	20	40	20
	240 mm		30	40	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		



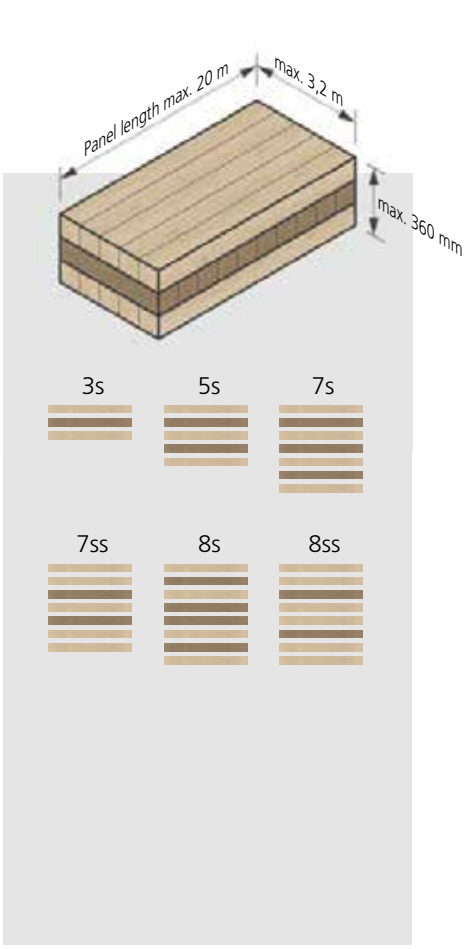
Scan to find out more:
CLT – Timber products | Stora Enso

Dimensioning software for timber structures
calculatis.storaenso.com/

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

HASSLACHER Holding GmbH

HASSLACHER CROSS LAMINATED TIMBER according to ETA-12/0281



Standard panel structure

Panel type		Panel structure / lamella thickness [mm]				
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
180 mm		40	30	40	30	40
200 mm		40	40	40	40	40
200 mm	7s / 7ss	30+30	30	20	30	30+30
210 mm		30+30	30	30	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	8s / 8ss	40+40	30	40+40	30	40+40
320 mm		40+40	40	40+40	40	40+40

Further structures possible on request.

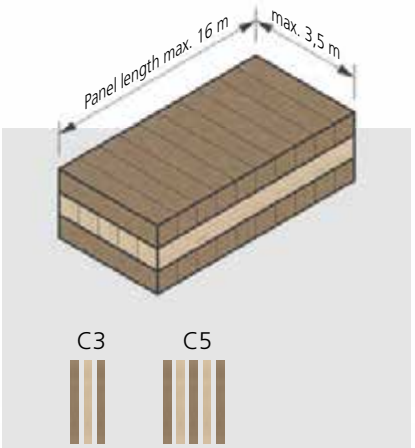
Scan to find out more:
www.hasslacher.com

Brüder Theurl GmbH

CLTPLUS according to ETA-20/0843

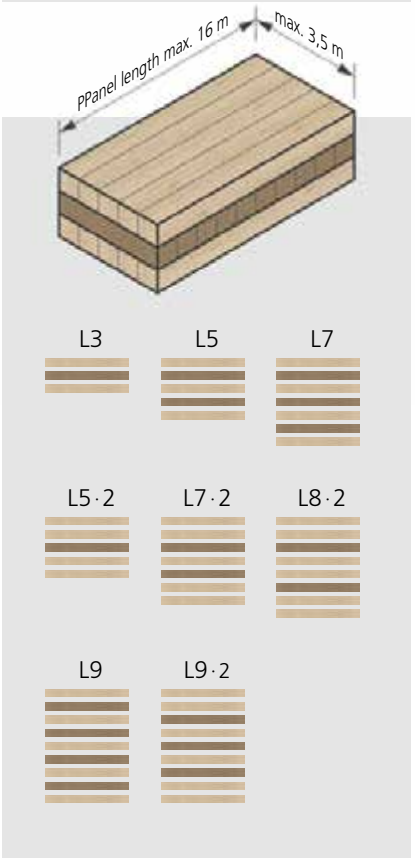
Wall constructions

	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

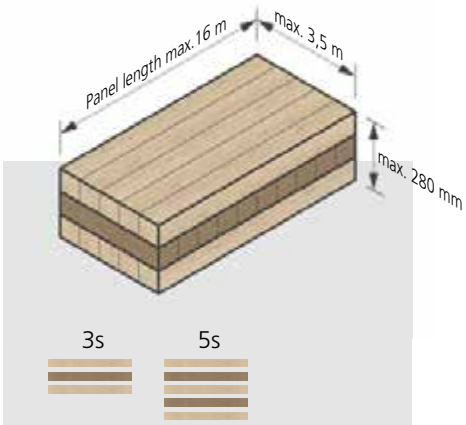
	Element type		Element structure / lamella thickness [mm]								
Top layer parallel to panel direction (DL)	60 mm	L3	20	20	20						
	80 mm		30	20	30						
	90 mm		30	30	30						
	100 mm		30	40	30						
	120 mm		40	40	40						
	100 mm	L5	20	20	20	20	20				
	120 mm		30	20	20	20	30				
	140 mm		40	20	20	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	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

Binderholz Bausysteme GmbH

Binderholz Brettsperrholz BBS
according to ETA-06/0009



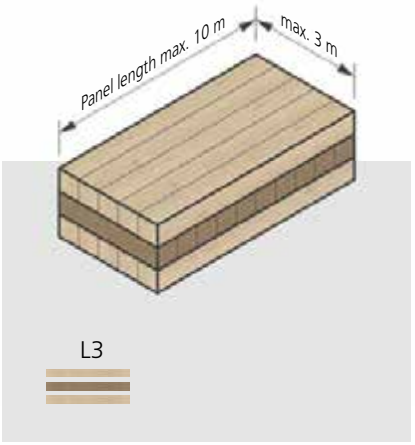
Standard panel structure						
Panel type		**Panel structure / lamella thickness [mm]**				
60 mm	3s	20	20	20		
80 mm		30	20	30		
90 mm		30	30	30		
100 mm		30	40	30		
120 mm		40	40	40		
160 mm		60	40	60		
100 mm	5s	20	20	20	20	20
120 mm		30	20	20	20	30
140 mm		40	20	20	20	40
160 mm		40	20	40	20	40
180 mm		60	20	20	20	60
200 mm		60	20	40	20	60
220 mm		60	30	40	30	60
240 mm		80	20	40	20	80
260 mm		80	30	40	30	80
280 mm		80	40	40	40	80

Other superstructures and longer panel lengths available on request.

Scan and find out more:
www.binderholz.com

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

INLAP Fire dampers

- Small installation depth
- Easy installation

FSAeco Fire damper air vent FLI-VE$_{(ho+ve)}$90

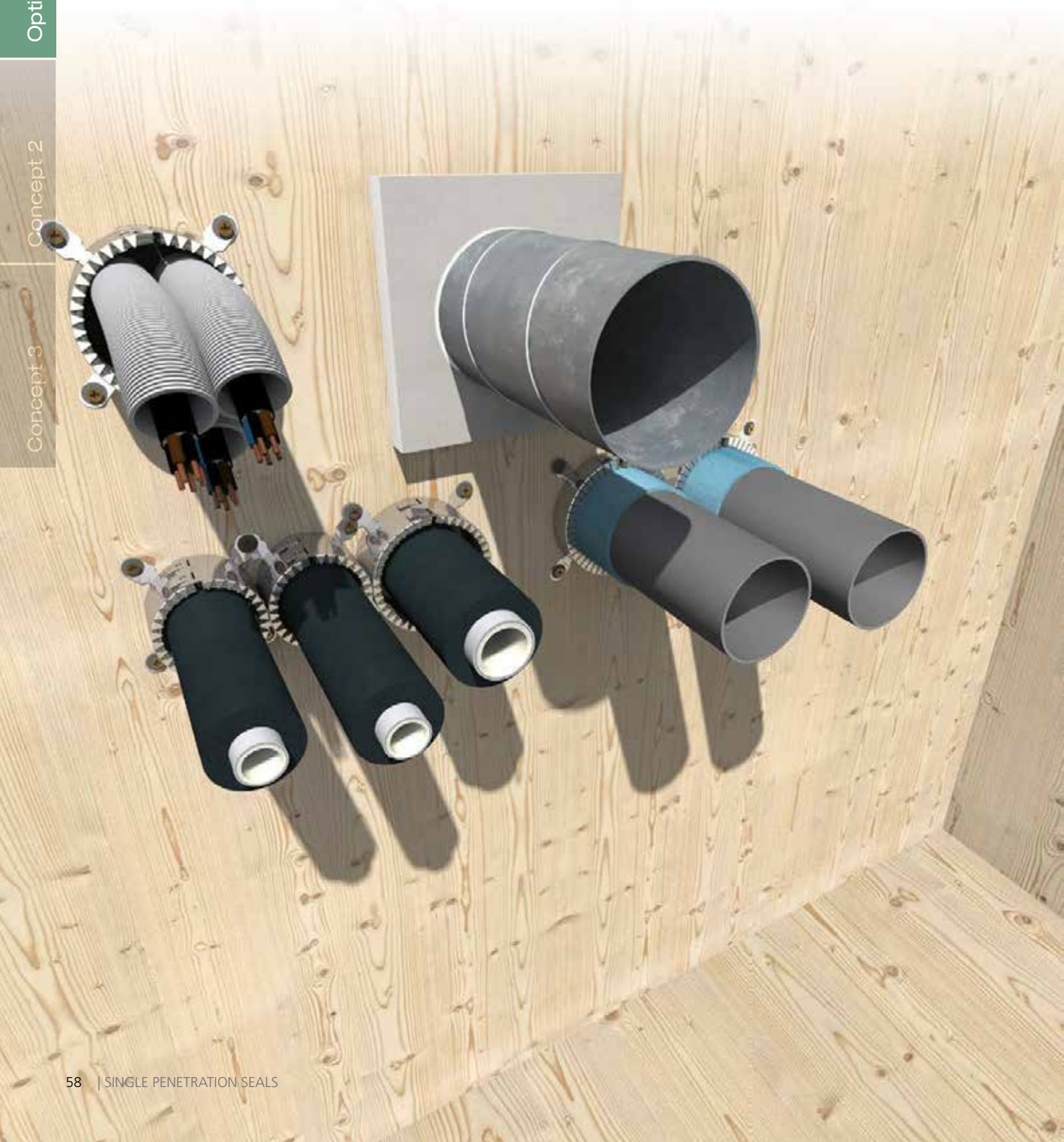
- No annual inspection requirement

PRODEC Fire damper air vent FLI-VE$_{(ho+ve)}$90

- Free cross-section

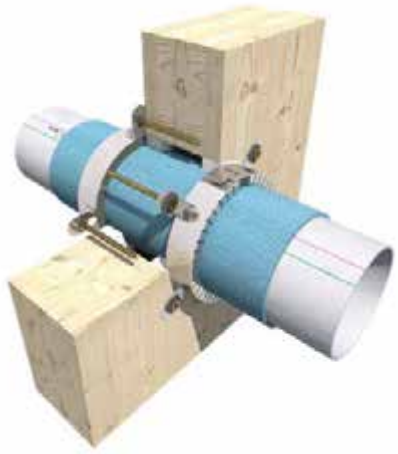
Single penetration seals

for cross-laminated timber walls ≥ 100 mm

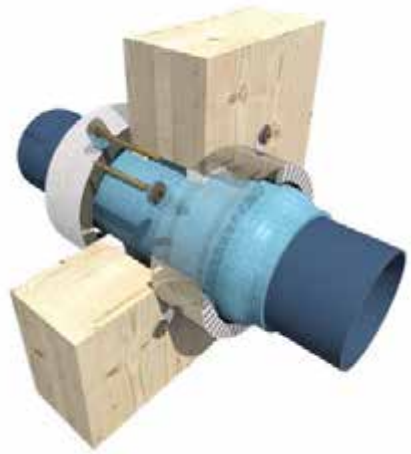


RORCOL V30 / RORCOL V60 Pipe collars for plastic sewage pipes

for cross-laminated timber walls ≥ 100 mm



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 configuration[1]
- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter
- PE ≤ Ø200 mm
- PP ≤ Ø160 mm
- PP-R ≤ Ø110 mm
- PVC-U ≤ Ø250 mm
- Multilayer plastic pipes ≤ Ø160 mm
  - POLO-KAL NG (≤ Ø200 mm), XS, 3S; RAUPIANO PLUS, etc.
- Pellet pipes (PVC, PVC/PU) Ø58 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

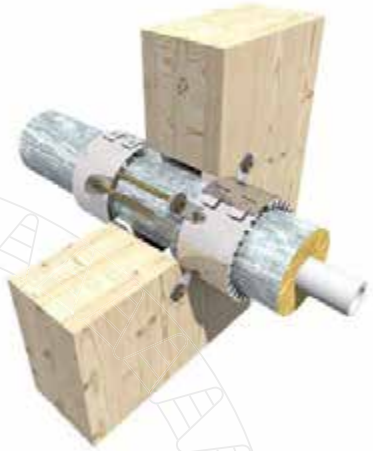
Other applications
- Plug-in sleeve up to pipe Ø160 mm (collar one size larger than the pipe diameter)

[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

RORCOL AV60
for metal pipes

RORCOL AV60
for electrical conduits with cable



RORCOL AV60
for multi-layer composite pipes

[1] Pipe end configuration according to EN 1366-3
[2] With continuous insulation according to EN 1366-3

Application areas

EI90

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

Pipe end configuration[1]
- U/C, C/C

Pipe material / Outer pipe diameter
- Multi-layer composite pipes ≤ Ø63 mm
  - TECEflex, KELOX®, FlowFit etc.
- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø22 mm
- Dimensions of electrical conduits
  - Plastic electrical conduits ≤ Ø50 mm (with/without cables with an outer diameter ≤ Ø21 mm)
  - Tightly secured bundles ≤ Ø100 mm consisting of plastic electrical conduits ≤ Ø50 mm (with/without cables with an outer diameter ≤ Ø21 mm)
- Cable dimensions
  - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm
  - Tightly secured cable bundles ≤ Ø100 mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 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

SMILE-E Fire protection plate for electrical flush-mounted boxes

for cross-laminated timber walls ≥ 100 mm

Application areas

EI90

Pipe material / Outer pipe diameter

- Max. 2 electrical conduits ≤ 20 mm each with 1 ≤ 5x1.5mm² cable
- Max. 2 cables ≤ 5x1.5 mm²

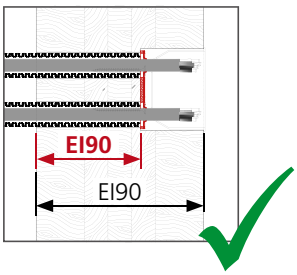
Installation of the SMILE-E fire protection plate

- Drywall screws

Mounting type

- Used

With SMILE-E



Without SMILE-E

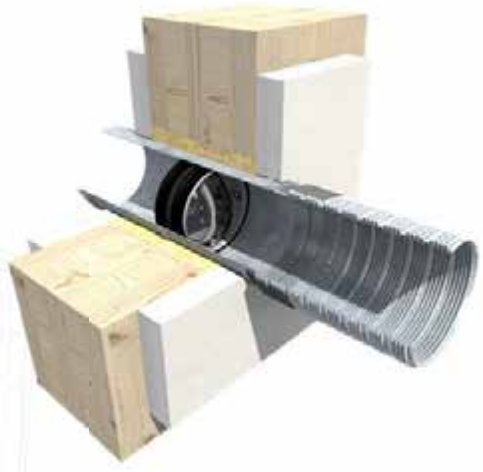
- *Robust and corrosion-resistant*
- *Integrated smoke-tightness*
- *Minimum effort, maximum safety*

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

INLAP-ST
in 150 mm cross-laminated timber wall



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

Application areas

EI90

INLAP size
- DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ 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

- *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 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 ≤ 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.

Single penetration seals

for cross-laminated timber ceilings ≥ 140 mm,

RORCOL V30 / RORCOL V60 Pipe collars for plastic sewage pipes

for cross-laminated timber ceilings ≥ 140 mm

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 configuration[1]
- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter
- PE ≤ Ø135 mm
- PP ≤ Ø160 mm
- PP-R ≤ Ø110 mm
- Multilayer plastic pipes ≤ Ø160 mm
  - POLO-KAL NG (≤ Ø200 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 Ø160 mm
- Electrofusion collar up to pipe Ø110 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 ceilings ≥ 140 mm

RORCOL AV60
for multi-layer composite pipes

RORCOL AV60
for copper pipes

RORCOL AV60
for bundles of electrical conduits

[1] Pipe end configuration according to EN 1366-3
[2] With continuous insulation according to EN 1366-3

Application areas

EI90

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

Pipe end configuration[1]
- U/C, C/C

Pipe material / Outer pipe diameter
- Multi-layer composite pipes ≤ Ø63 mm
  - TECEflex, KELOX®, FlowFit etc.
- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø22 mm
- Dimensions of electrical conduits
  - Plastic electrical conduits ≤ Ø50 mm (with/without cables with an outer diameter ≤ Ø21 mm)
  - Tightly secured bundles ≤ Ø100 mm consisting of plastic electrical conduits ≤ Ø50 mm (with/without cables with an outer diameter ≤ Ø21 mm)
- Cable dimensions
  - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm
  - Tightly secured cable bundles ≤ Ø100 mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 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

SMILE-E Fire protection plate for electrical flush-mounted boxes

for cross-laminated timber ceilings ≥ 140 mm

Application areas

EI90

Pipe material / Outer pipe diameter

- Max. 2 electrical conduits ≤ 20 mm each with 1 ≤ 5x1.5mm² cable
- Max. 2 cables ≤ 5x1.5 mm²

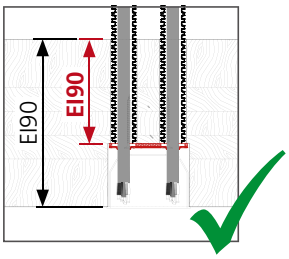
Installation of the SMILE-E fire protection plate

- Drywall screws

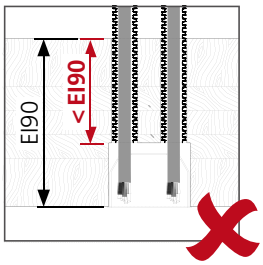
Mounting type

- Used

With SMILE-E



Without SMILE-E



- *Robust and corrosion-resistant*
- *Integrated smoke-tightness*
- *Minimum effort, maximum safety*

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

Application areas

EI90

INLAP size
- DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ 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

INLAP
in 140 mm cross-laminated timber floor/ceiling

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

INLAP-ST with integrated duct connector

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

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

Application areas

FLI-VE$_{(ho+ve)}$90

FSAeco size
- DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ 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.

National construction products

PRODEC Fire damper air vents for ventilation ducts

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

PRODEC
in 140 mm cross-laminated timber floor
with 5 mm Structure-borne noise insulation

PRODEC
surface-mounted on 140 mm cross-laminated timber floor

Application areas

FLI-VE(ho+ve)90

PRODEC size
- DN80, DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN160

Insulating material / Insulation thickness
- Uninsulated
- Elastomer 19 mm
- Structure-borne noise insulation 5 mm

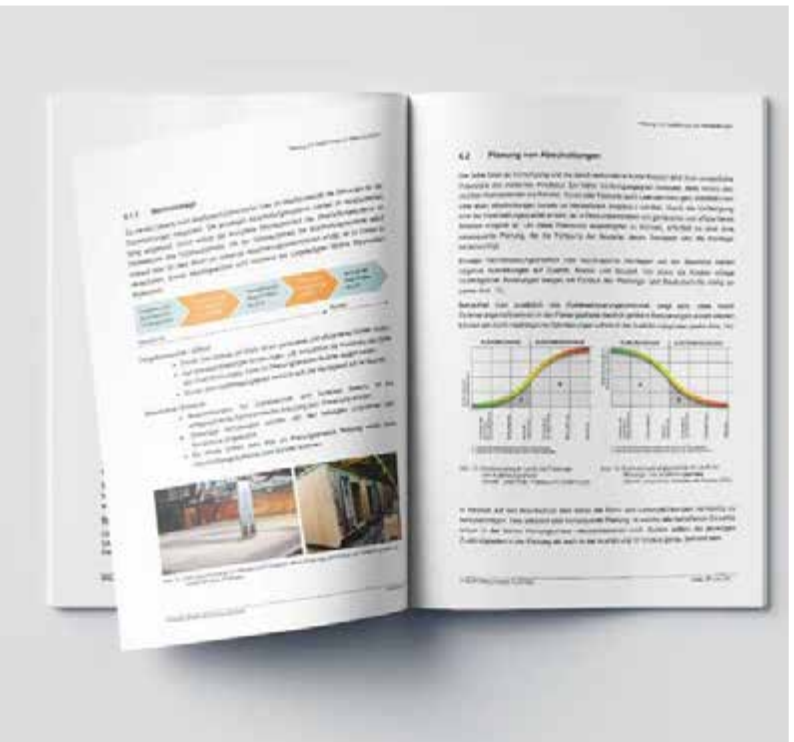
Installation method
- Surface-mounted
- Flush-mounted

- *Free cross-section*
- *Low pressure loss*

HOLZ FORSCHUNG AUSTRIA

Partition systems in cross-laminated timber

Download it right here!



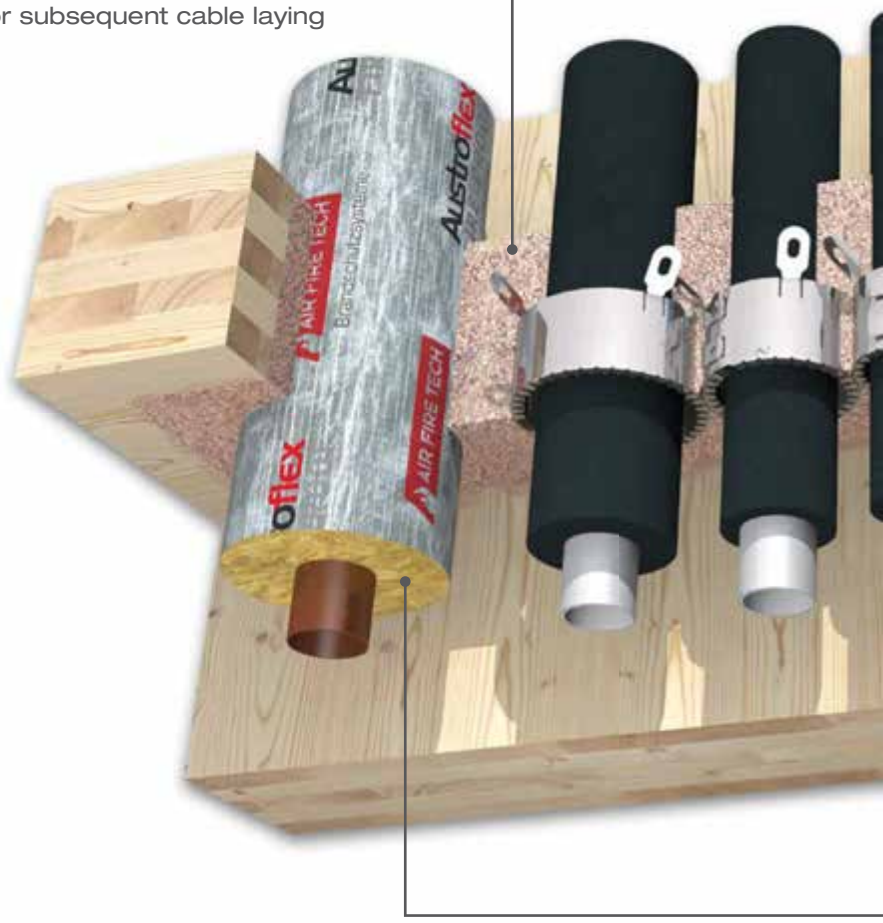
MIXED PENETRATION SEAL TIROTECH®

Simple and safe!

TIROTECH® is a kit for use as a cable and/or pipe penetration seal (mixed penetration seal). It combines the positive properties of the unique **TIROTECH® fire protective mortar** with the advantages of the tried-and-tested **RORCOL pipe collars**, enabling openings in rigid walls and rigid floors to be sealed in a safe and simple manner.
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 an 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 82)

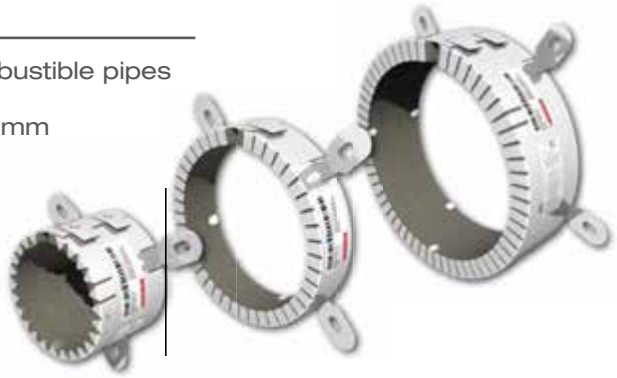
TIROTECH® Fire protective mortar

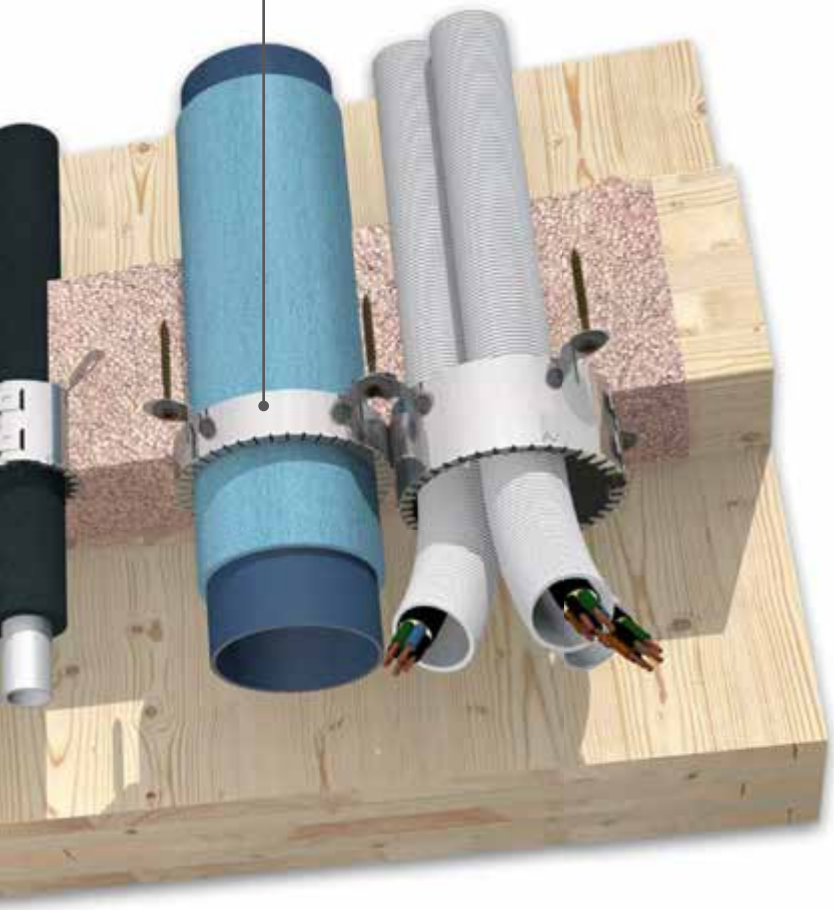
- Application without any complex formwork
- Installation of empty conduits for subsequent cable laying

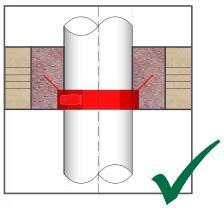


RORCOL Pipe collars

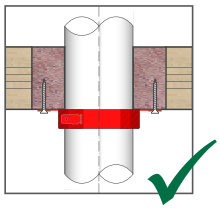
- For combustible and non-combustible pipes
- For cable bundles up to Ø 100 mm
- Zero clearance



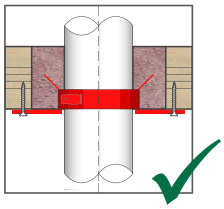




Flush-mounting possible



Dowel-free fixing



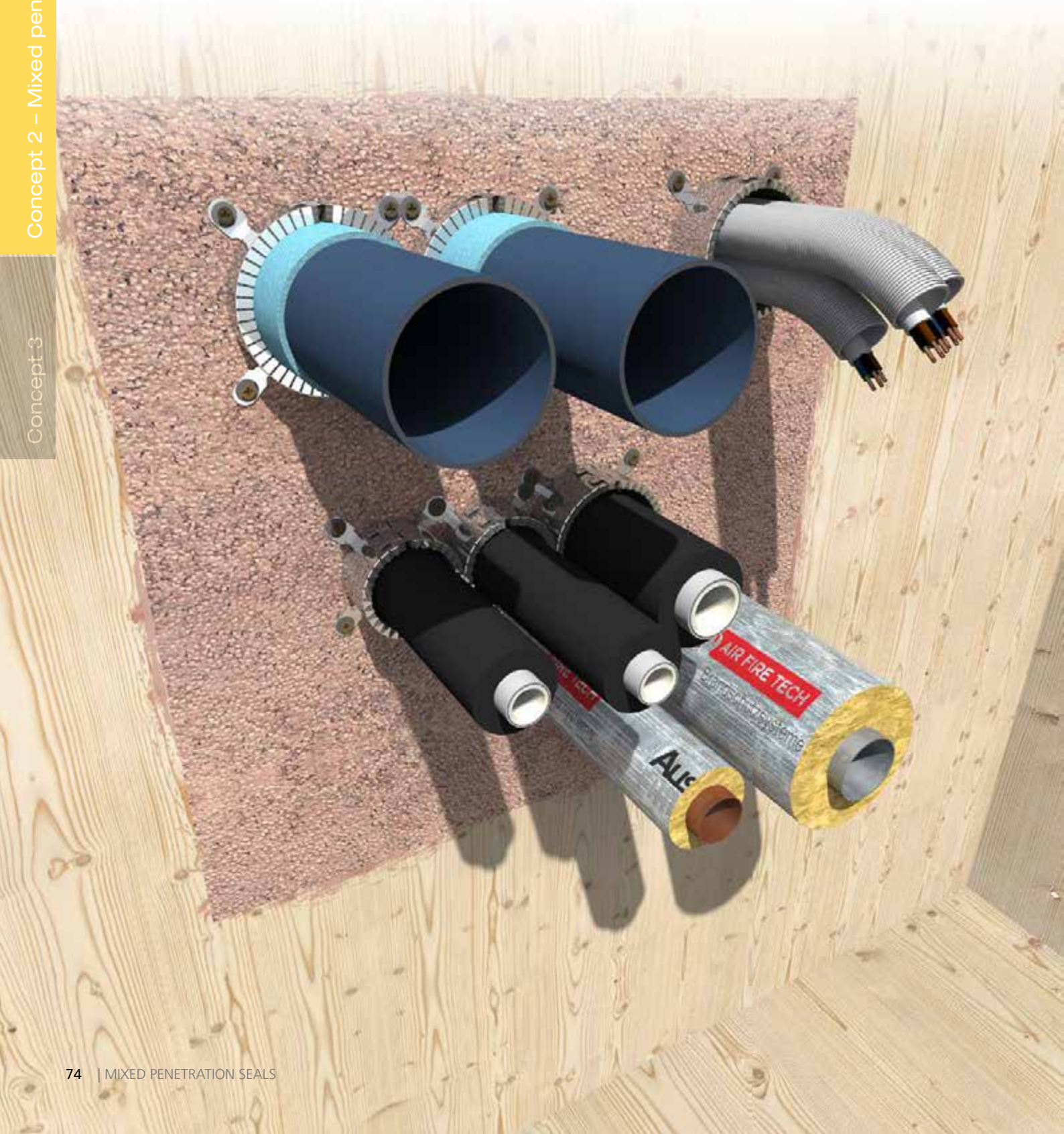
Permanent formwork

FIRE PROOF Pipe section

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

Mixed penetration seal TIROTECH®

for cross-laminated timber ceilings ≥ 100 mm



MIXED PENETRATION SEAL TIROTECH®

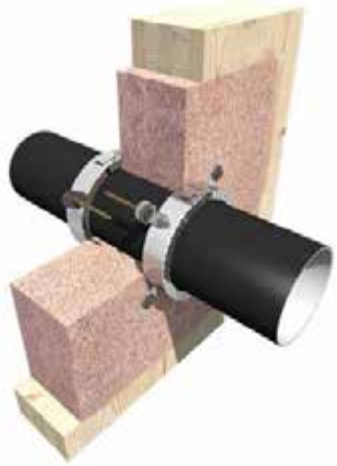
RORCOL V30 / RORCOL V60

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 configuration[1]
- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter
- PE, PP ≤ Ø160 mm
- Multilayer plastic pipes ≤ Ø160 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

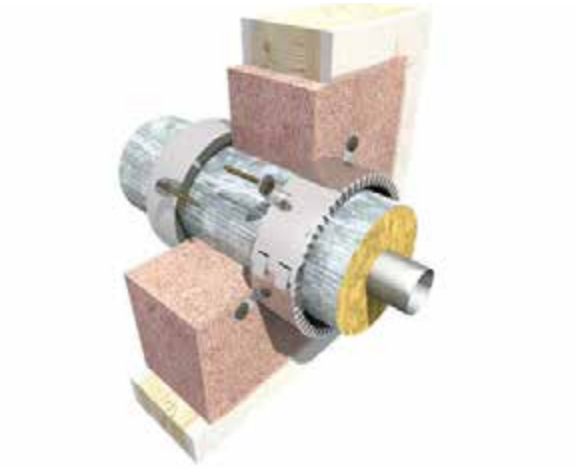
Installation method
- Surface-mounted

[1] Pipe end configuration according to EN 1366-3
[2] With local or continuous insulation according to EN 1366-3

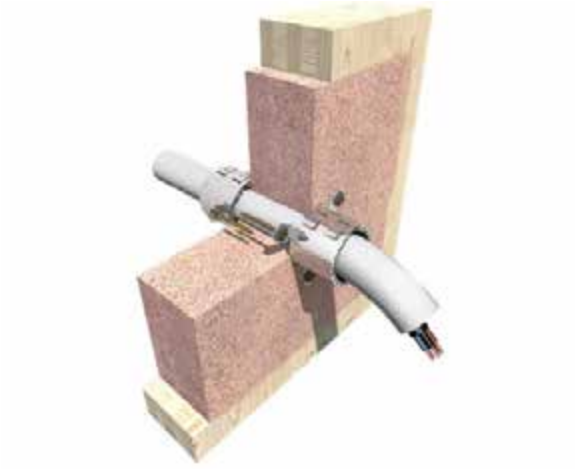
MIXED PENETRATION SEAL TIROTECH® RORCOL AV60

for multi-layer composite pipes, metal pipes and cables

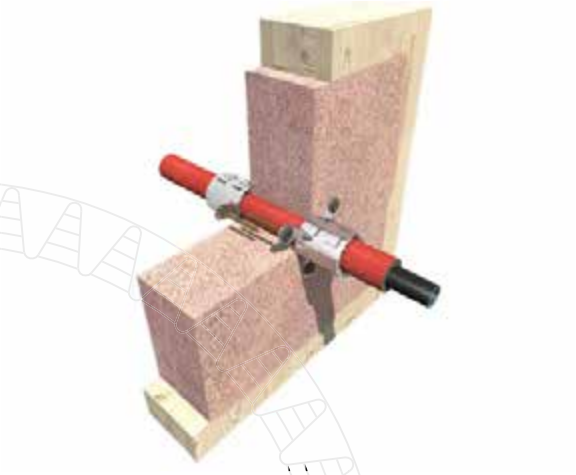
for cross-laminated timber walls ≥ 100 mm, with or without plasterboard as per EN 520



RORCOL AV60
for stainless steel pipes



RORCOL AV60
for electrical conduits with cable



RORCOL AV60
for multi-layer composite pipes

[1] Pipe end configuration according to EN 1366-3
[2] With continuous insulation according to EN 1366-3

Application areas

EI90

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

Pipe end configuration[1]
- U/C, C/C

Pipe material / Outer pipe diameter
- Multi-layer composite pipes ≤ Ø63 mm
  - TECEflex, KELOX®,FlowFit etc.
- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø42 mm
- Dimensions of electrical conduits
  - Plastic electrical conduits ≤ Ø50 mm
    (with/without cables with an outer diameter ≤ Ø21 mm)
  - Tightly secured bundles ≤ Ø100 mm consisting of plastic electrical conduits ≤ Ø50 mm
    (with/without cables with an outer diameter ≤ Ø21 mm)
- Cable dimensions
  - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm
  - Tightly secured cable bundles ≤ Ø100 mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm

Insulating material / Insulation thickness (CS)[2]
For multi-layer composite pipes:
- PE 4-10 mm
- Elastomer 6-43 mm
- Mineral wool with aluminium laminate ≤ 60 mm

For metal pipes:
- Elastomer ≥ 9 mm
- Mineral wool with aluminium laminate ≥ 20 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

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

[1] Pipe end configuration according to EN 1366-3

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 configuration[1]
- U/C, C/C

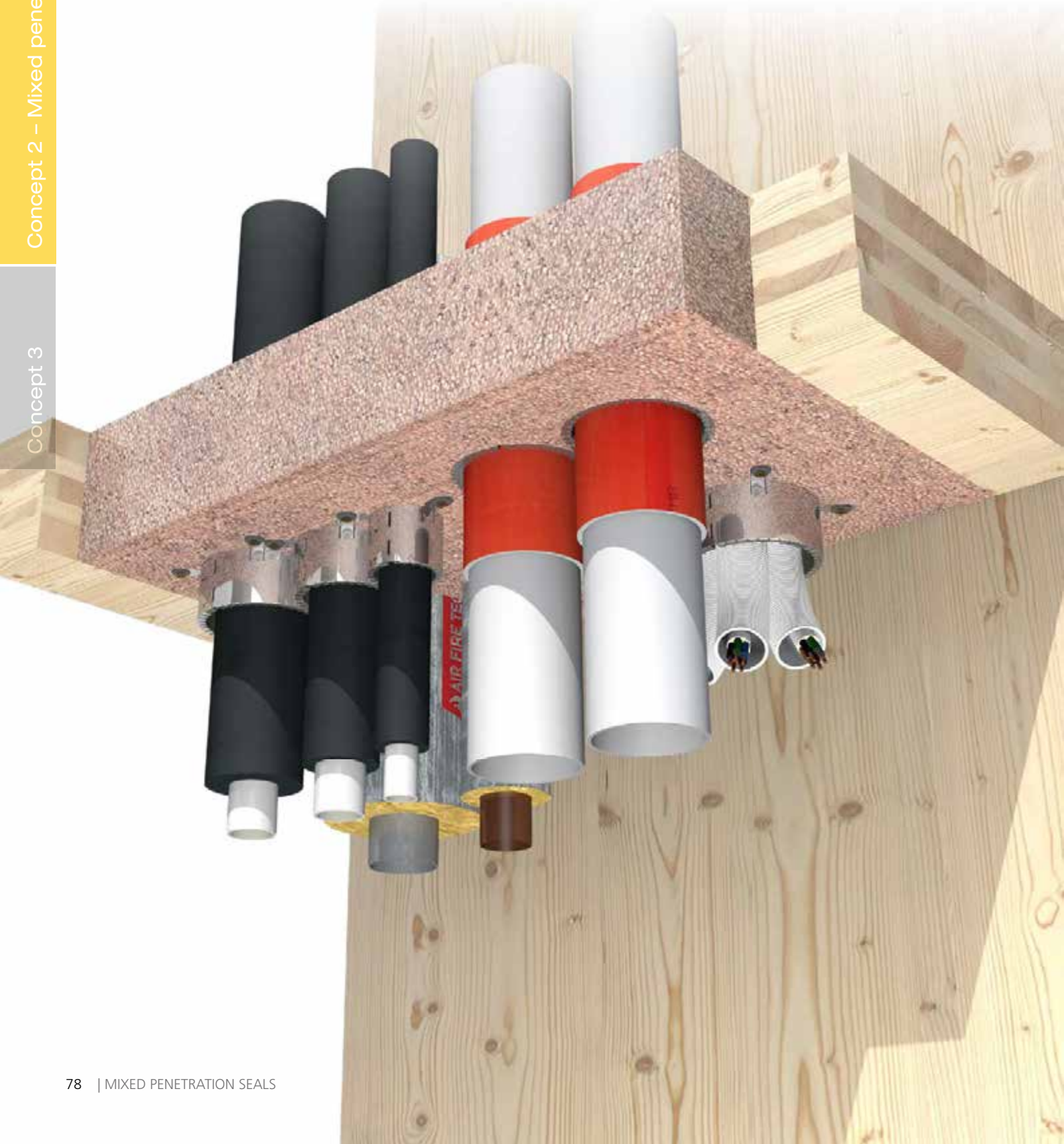
Pipe material / Outer pipe diameter
- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø54 mm

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

Mixed penetration seal TIROTECH®

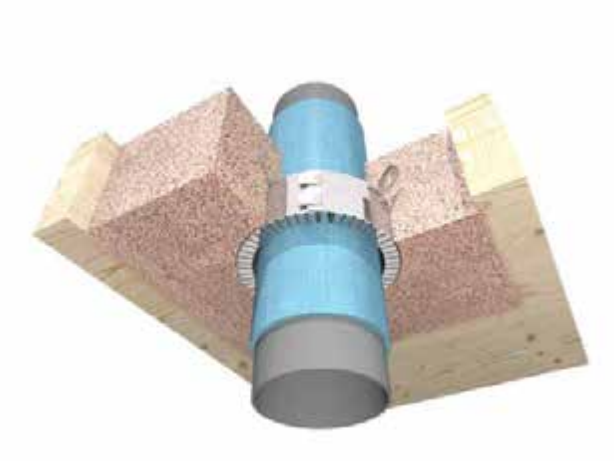
for cross-laminated timber ceilings ≥ 140 mm



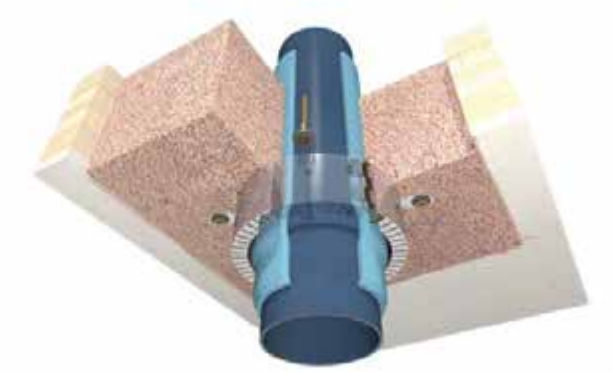
MIXED PENETRATION SEAL TIROTECH® RORCOL V30 / RORCOL V60

for plastic sewage pipes

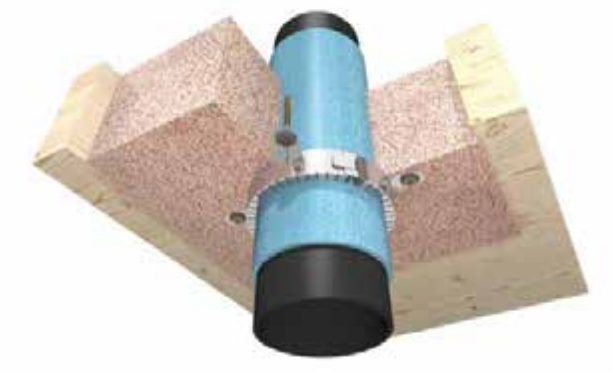
for cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



RORCOL V60
flush-mounted



RORCOL V60
for sewage pipes with plug-in sleeve



RORCOL V30
for sewage pipes with insulation

Application areas

EI90

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

Pipe end configuration[1]
- U/U, U/C, C/U, C/C

Pipe material / Outer pipe diameter
- PE, PP ≤ Ø160 mm
- Multilayer plastic pipes ≤ Ø160 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

[1] Pipe end configuration according to EN 1366-3
[2] With local or continuous insulation according to EN 1366-3

MIXED PENETRATION SEAL TIROTECH® RORCOL AV60

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 copper pipes

RORCOL AV60
for multi-layer composite pipes

RORCOL AV60
for electrical conduits with cable

Application areas

EI90

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

Pipe end configuration[1]
- U/C, C/C

Pipe material / Outer pipe diameter
- Multi-layer composite pipes ≤ Ø63 mm
  - TECEflex, KELOX®, FlowFit etc.
- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø42 mm
- Dimensions of electrical conduits
  - Plastic electrical conduits ≤ Ø50 mm
    (with/without cables with an outer diameter ≤ Ø21 mm)
  - Tightly secured bundles ≤ Ø100 mm consisting of plastic electrical conduits ≤ Ø50 mm
    (with/without cables with an outer diameter ≤ Ø21 mm)
- Cable dimensions
  - All types of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm
  - Tightly secured cable bundles ≤ Ø100 mm consisting of sheathed cables currently used in the European construction industry (with the exception of waveguides), with an outer diameter ≤ Ø21 mm

Insulating material / Insulation thickness (CS)[2]
For multi-layer composite pipes:
- PE 4-10 mm
- Elastomer 6-43 mm
- Mineral wool with aluminium laminate ≤ 60 mm

For metal pipes:
- Elastomer ≥ 6 mm
- Mineral wool with aluminium laminate ≥ 20 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
- Flush-mounted

[1] Pipe end configuration according to EN 1366-3
[2] With 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 configuration[1]

- U/C, C/C

Pipe material / Outer pipe diameter

- Metal pipes: Carbon steel ≤ Ø76 mm
  Copper ≤ Ø54 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

COMBINED PENETRATION SEAL TIROTECH®

TIROTECH is also tested as an 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.

TIROTECH® Fire protective mortar

RORCOL Pipe collars

INLAP Fire dampers

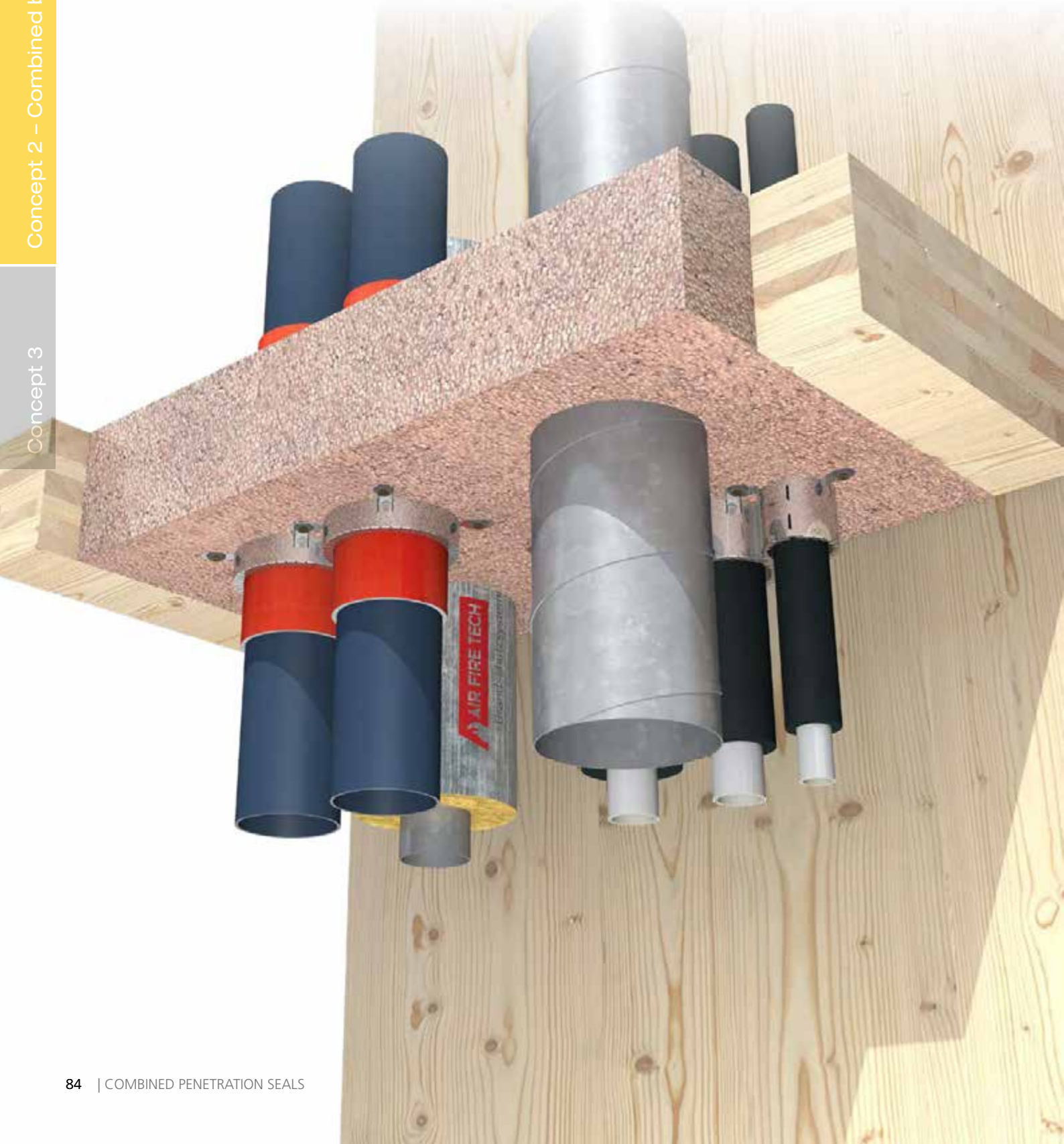
- Small installation depth
- Also suitable for insulated air ducts

FIRE PROOF Pipe section

Combined penetration seal TIROTECH®

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

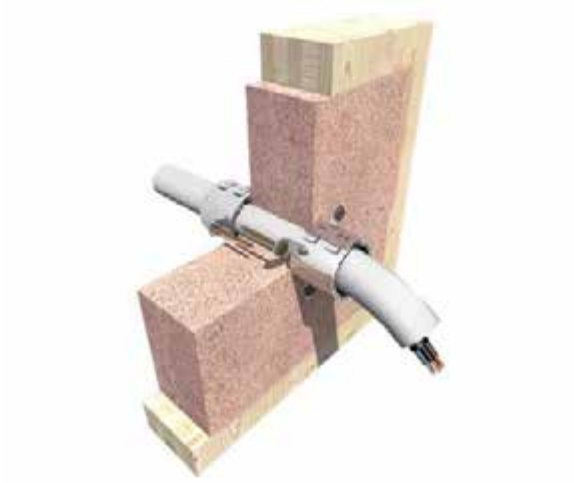
and cross-laminated timber floors ≥ 140 mm,
with or without plasterboard as per EN 520



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

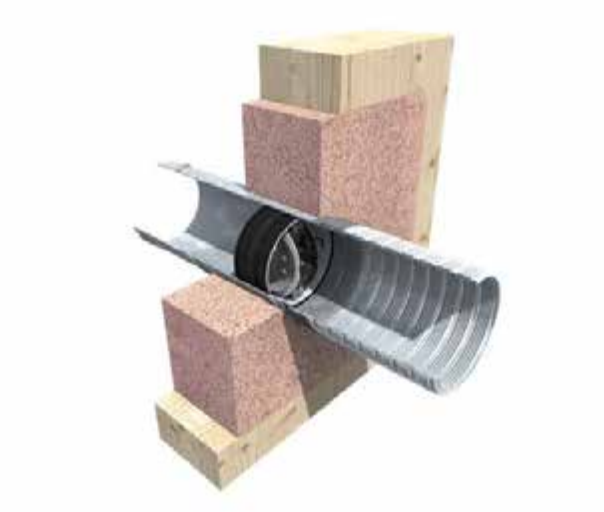
FIRE PROOF
for metal pipes

Application areas

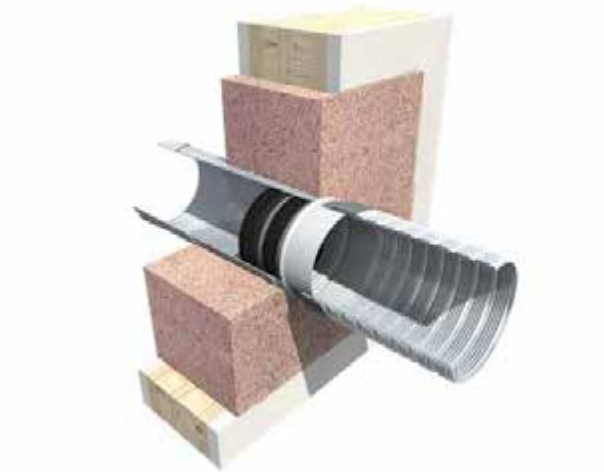
See section "Mixed penetration seal TIROTECH®" – Page 72

COMBINED PENETRATION SEAL TIROTECH® INLAP for ventilation ducts

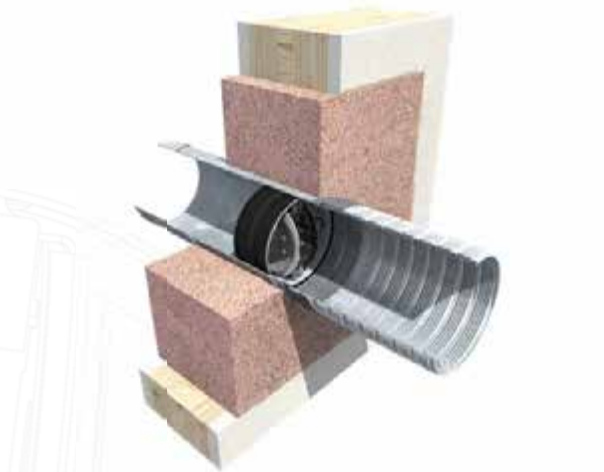
for cross-laminated timber walls ≥ 100 mm and cross-laminated timber floors ≥ 140 mm, with or without plasterboard as per EN 520



INLAP
in 100 mm TIROTECH® fire protective mortar



INLAP-ST
with integrated duct connector



INLAP
in 130 mm TIROTECH® fire protective mortar

Application areas

EI90

INLAP size
- DN110, DN125, DN160, DN200, DN250

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN250

Insulating material / Insulation thickness
- Uninsulated
- Elastomer 19 mm

Installation method
- 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

Application areas

EI90

INLAP size
- DN110, DN125, DN160, DN200, DN250

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN250

Insulating material / Insulation thickness
- Uninsulated
- Elastomer 19 mm

Installation method
- Flush-mounted

INLAP-ST
with integrated duct connector

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

FSAeco
flush-mounted in insulated air duct

NATIONAL PENETRATION SEAL COMBINATION TIROTECH®

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-095.4-001/06-010 and EN 1366-3.

TIROTECH® Fire protective mortar

RORCOL Pipe collars

National construction products

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

National penetration seal combination TIROTECH®

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

Application areas

See section "Mixed penetration seal TIROTECH®" – Page 72

RORCOL AV60
for multi-layer composite pipes

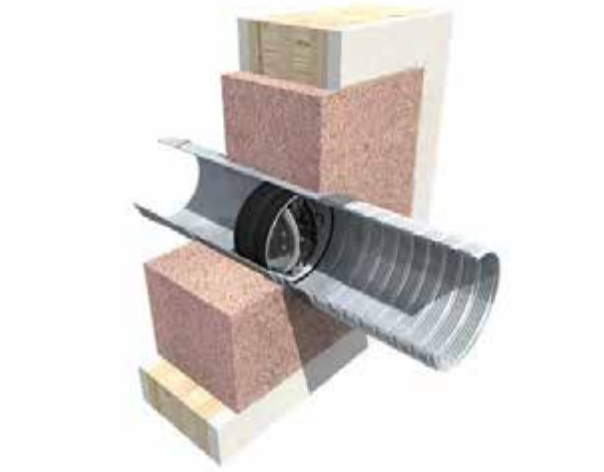
FIRE PROOF
for metal pipes

NATIONAL PENETRATION SEAL COMBINATION TIROTECH® FSAeco

for ventilation ducts

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

FSAeco-ST
with integrated duct connector



FSAeco
in 140 mm TIROTECH®- fire protective mortar

FSAeco
in 100 mm TIROTECH® fire protective mortar

Application areas

FLI-VE$_{(ho+ve)}$90

FSAeco size
- DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN160

Installation method
- 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

FSAeco-ST
with integrated duct connector

Application areas

FLI-VE$_{(ho+ve)}$90

FSAeco size
- DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN160

Installation method
- Flush-mounted

FSAeco
in 155 mm TIROTECH® fire protective mortar

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

FSAeco flush-mounted
in insulated air duct

NATIONAL PENETRATION SEAL COMBINATION TIROTECH® PRODEC

for ventilation ducts

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

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

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

Application areas

FLI-VE(ho+ve)90

PRODEC size
- DN80, DN100, DN125, DN160

Pipe material / Outer pipe diameter
- Spiral ducts ≤ DN160

Insulating material / Insulation thickness
- Uninsulated
- Elastomer 19 mm

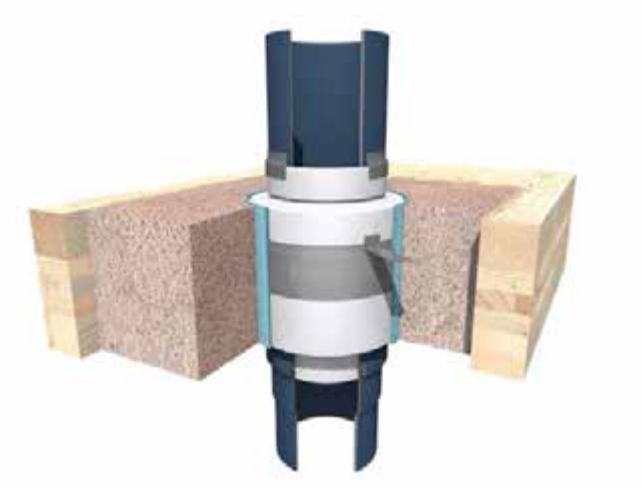
Installation method
- Surface-mounted
- Flush-mounted

- *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

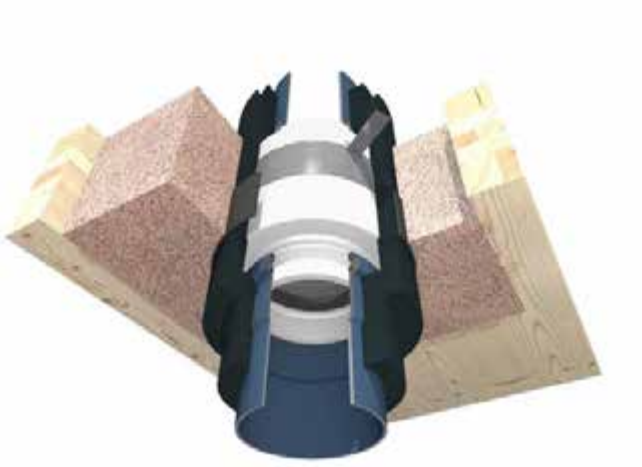
PRODEC size
- DN80, DN100, DN125, DN160

Pipe material / Outer pipe diameter
- POLO-KAL NG ≤ 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

PENETRATION SEALS IN SHAFT WALLS

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 A[1], 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.

1 Shaft type A according to TRVB 110 B – see page 8

A helpful guide to planning and coordinating the construction process can be found in the **technical bulletin of the Gemeinschaft Gewerke Innenausbau [Association of interior finishing trades] "Unser Schacht" [Our shaft]**.

PDF download:
Technical bulletin - Unser Schacht
[Our shaft]

FSAeco Fire damper air vents FLI-VE90

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

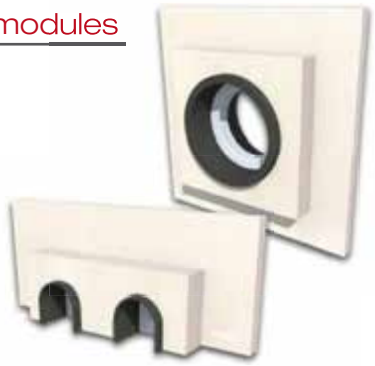
For product details, see page 42

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 an multi-layer composite pipes up to Ø 26 mm

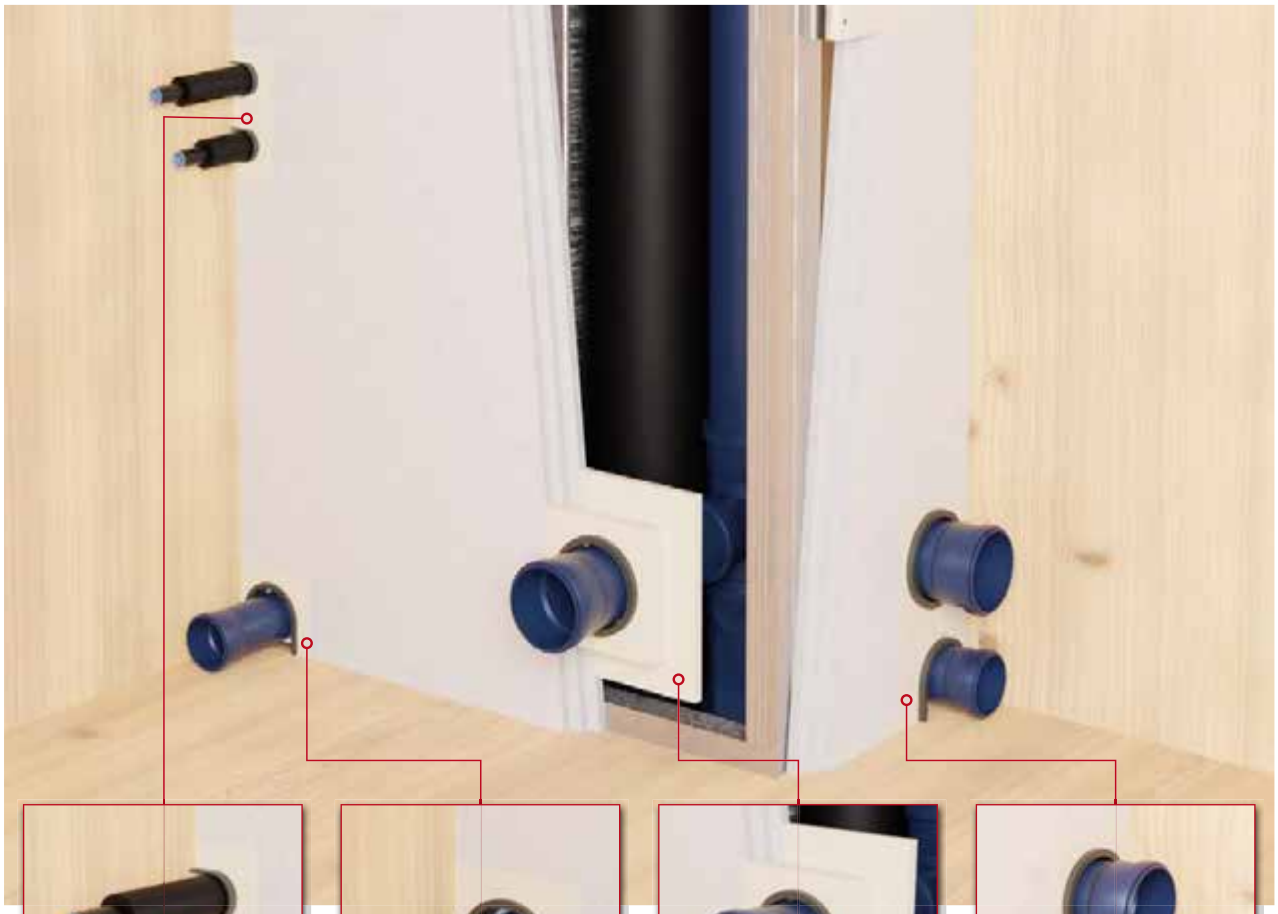


System RORCOL Pipe collars

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

For product details, see page 28

PREMO RORCOL Custom-made pipe penetration seal



For multi-layer composite pipes

Zero clearance between the pipe and the ceiling

For sewage pipes

Can be combined as desired

Product description

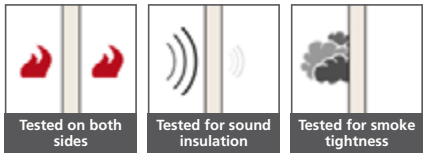
The PREMO RORCOL fire protection module, designed for the fire-resistant sealing of plastic pipes, aluminium composite pipes, air conditioning ducts and cables, consists of a stepped installation housing made of plasterboard with an integrated insulation layer.

The built-in housing provides a controlled interface between the trades (drywall and building services) to ensure the smoke-tightness of the shaft. It is customised to fit the shaft wall clad on one side (3x15 mm, 2x20 mm, 2x25 mm in accordance with EN 520 and EN 15283-1) and the number of pipe penetrations.

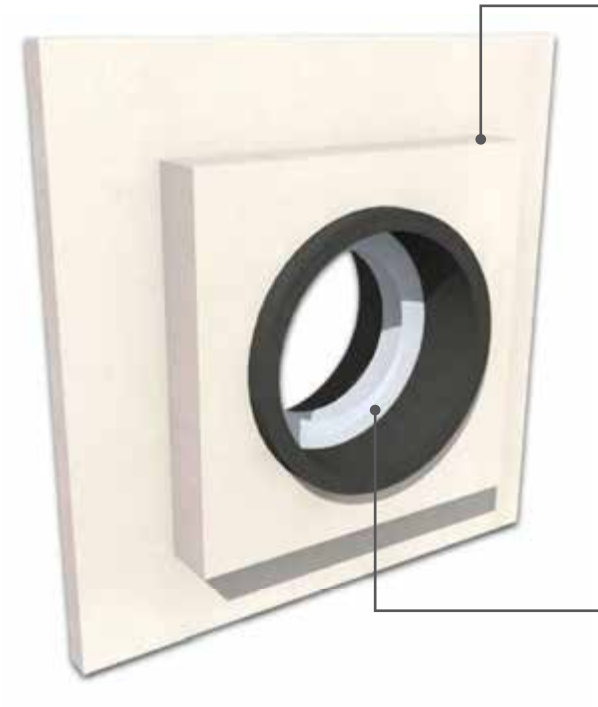
Inside the installation housing there are two permanently elastic sealing layers which ensure a smoke-tight seal between the pipework and the fire protection module. No further sealing measures, such as silicone or joint fillers, are required. Expansion of the pipework due to temperature fluctuations is absorbed by the sealing layers and is therefore not transferred to the shaft wall. In the event of a fire, the intumescent material expands and seals the fire protection module.

Tested for fire resistance according to EN 1366-3 and classified according to EN 13501-2. **Tested for sound insulation** according to EN ISO 10140. **Tested** for **smoke tightness** up to 600 Pa according to EN 12153 and EN ISO 9972.

Special features



Tested on both sides in accordance with EN 1366-3
Classified in accordance with EN 13501-2
Acoustically tested in accordance with EN ISO 10140
Smoke tightness tested in accordance with EN 12153 and EN ISO 9972



Defined interface

- Defined interface between building services and drywall construction
- Fire, smoke and sound insulation achieved in a single operation
- Reduced coordination effort during the construction process

"The defined interface between the plumber and drywall construction."

Integrated density levels

- Smoke-tight seal for the pipe
- No additional waterproofing work
- Acoustic decoupling of the pipework

PREMO RORCOL Configuration examples

For pipework	For pipes routed directly on the wall / on the floor	For pipes routed directly into corners	For air conditioning ducts and cables
PREMO RORCOL DN110 	PREMO RORCOL OMEGA DN75 	PREMO RORCOL OMEGA Corner DN50 	PREMO RORCOL K 2x DN50 
PREMO RORCOL 2x DN16-26 	PREMO RORCOL OMEGA 3x DN16-26 	PREMO RORCOL OMEGA Corner DN75 	PREMO RORCOL DN50 

FIREREV access panels

Product description

FIREREV access panels provide maximum safety combined with optimum domestic comfort, user-friendliness and visual appeal. The products are easy to install in compliance with test certificates and can be used universally in shaft walls lined on one side as well as rigid walls. They are available with different visible covers made of plasterboard or metal, with snap closures or different lock types. This allows individual requirements to be met, with a maximum possible size of 120 x 80 cm in walls and 60 x 60 cm in suspended floors.

FIREREV GPS
EI90/EI60/EI30

FIREREV VKW
EI90/EI60/EI30

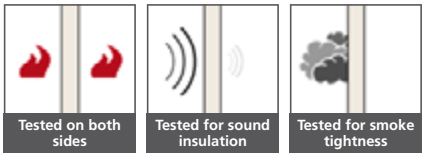
FIREREV VKS
EI90/EI60/EI30

Visible cover

GPS – gypsum fibreboard with snap closure and hinges
VKW – metal cover with square-head bolt lock, white powder-coated
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

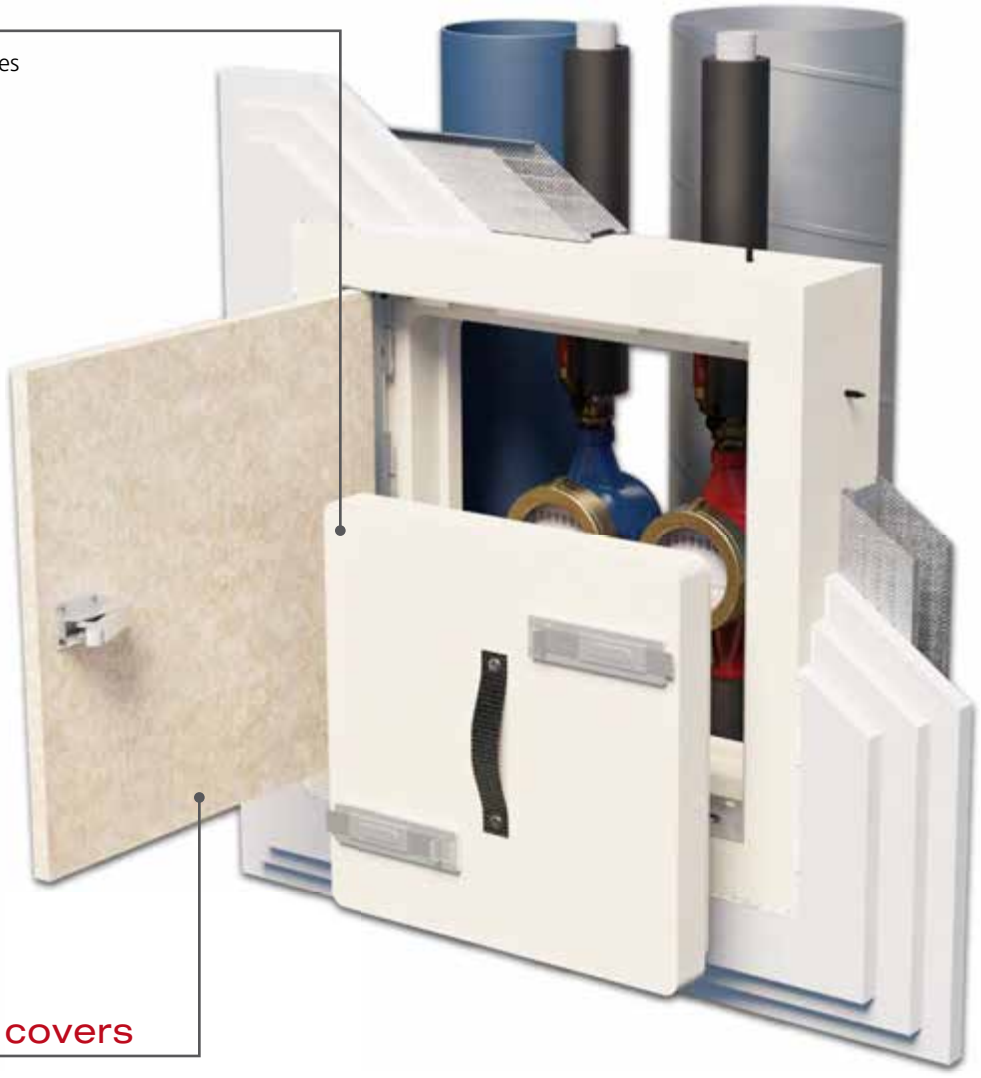


Safe fire closure

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

Soundproof

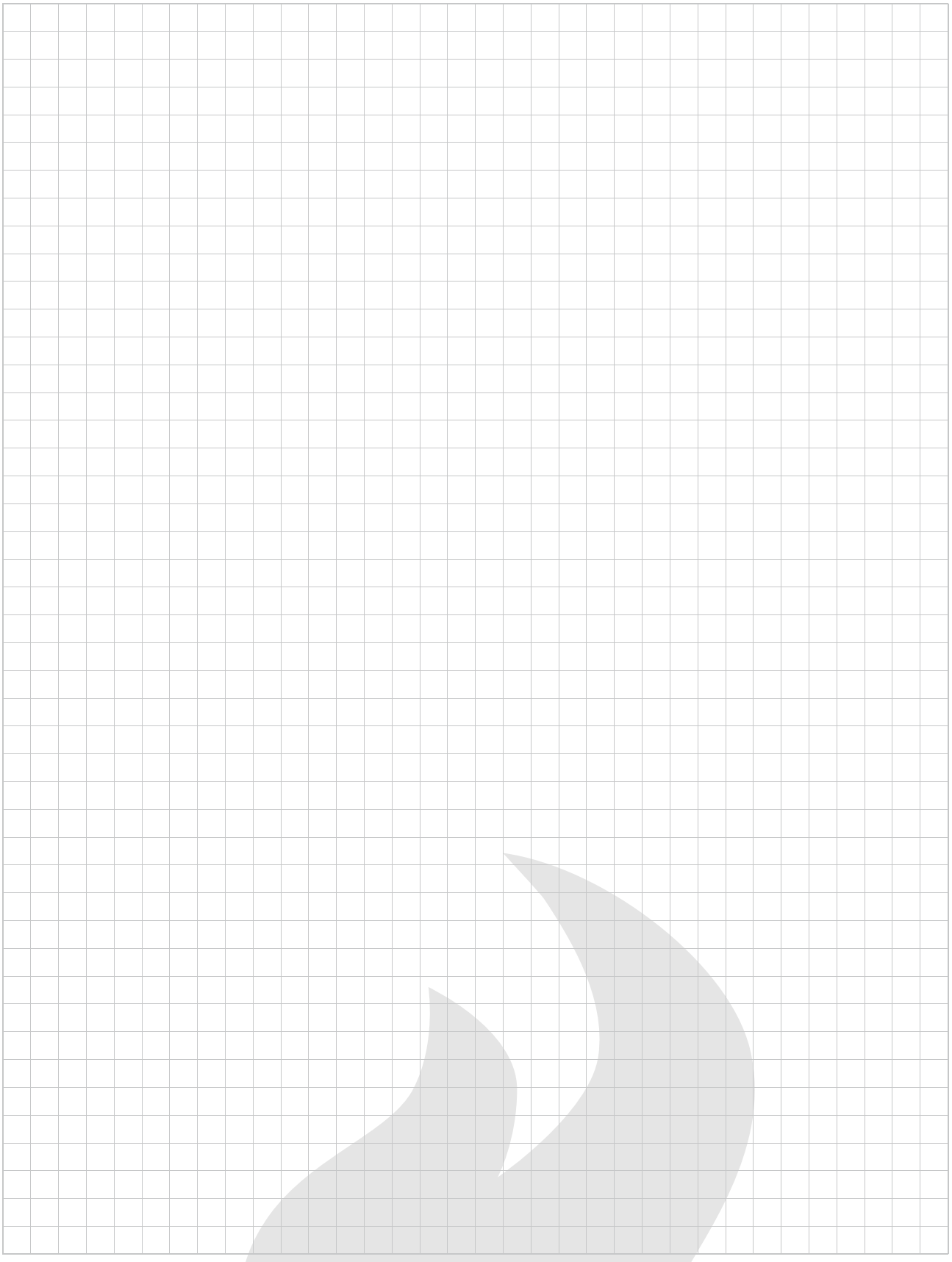
Smoke-tight



Variety of visible covers

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

NOTES



REFERENCES

Fire protection know no compromises

Preventive fire protection vor 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

Further information can be found at www.airfiretech.at

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