

1. Unieke identificatie van product

Firetect® Wrap + Wrap-'n-roll

2. Beoogd gebruik

bouwproduct om bouwkundige sparingen tbv buisdoorvoeren bij brand af te dichten, teneinde voortijdige branddoorslag te voorkomen in:

- standaard flexibele wanden ≥ 100mm
- standaard massieve wanden ≥ 100mm
- standaard massieve vloeren ≥ 150mm

3. Fabrikant

KLF Building Products BV
Techniekweg 11, 4207 HC Gorinchem, Nederland

4. Aangewezen gemachtigde

nvt

5. AVCP systeem

Systeem 1

6a. Geharmoniseerde norm

nvt

Certificeringsinstantie

nvt

6b. Europees BeoordelingsDocument (EBD)

350454-00-1104

Europese Technische Beoordeling (ETB)

ETA-14/0251

Conformiteitscertificaat

0960-CPR-SKGIKOB.011130.01.NL

Technische BeoordelingsInstantie (TBI)

SKG-IKOB

Identificatie aangemelde instantie

No. 0960

7. Aangegeven product prestaties

essentiële kenmerken

eigenschappen

prestaties

BWR 1 Mechanische weerstand + stabiliteit

nvt

BWR 2 Brandveiligheid

EN 13501-1

brandreactie

Klasse F

EN 13501-2

brandweerstand

per geteste toepassing; EI 30 t/m EI 240, zie ANNEX BWR2 + ANNEX A

BWR 3 Hygiëne, gezondheid + milieu

EAD 350454-00-1104, §2.2.3

luchtdoorlaatbaarheid

IA1, S/W3

EAD 350454-00-1104, §2.2.4

waterdichtheid

npd

EAD 350454-00-1104, §2.2.5

bestanddelen, emissie en/of uitstoot gevaarlijke bestanddelen

conform CLP geclassificeerd als niet gevaarlijk vlg. Verordening 1272/2008

BWR 4 Veiligheid in gebruik

EAD 350454-00-1104, §2.2.6

weerstand tegen belasting

npd

EAD 350454-00-1104, §2.2.7

weerstand tegen beweging

npd

EAD 350454-00-1104, §2.2.8

adhesie

npd

EAD 350454-00-1104, §2.2.9

duurzaamheid

Y₁ (intern gebruik)

BWR 5 Bescherming tegen geluid

EAD 350454-00-1104, §2.2.10

luchtgeluidisolatie

npd

BWR 6 Energiebesparing + warmtebehoud

EAD 350454-00-1104, §2.2.11

thermische geleidbaarheid

npd

EAD 350454-00-1104, §2.2.12

waterdampdoorlaatbaarheid

npd

Algemene aspecten in relatie tot geschiktheid

EAD 350454-00-1104, §1.2.2

aangenomen voorgenomen levensduur in gebruik

10 jaar

8. Specifieke technische documentatie

nvt

npd= geen prestatie bepaald

De prestaties van de omschreven producten zijn conform de aangegeven prestaties. Deze product prestatie verklaring is verstrekt conform Verordening 305/2011, onder de exclusieve verantwoordelijkheid van de fabrikant.

Ondertekend voor en namens de fabrikant te Gorinchem dd 12-05-2023 door C. Buikema

toepassingsgebied (FoA)	Firetect® Wrap + Wrap-'n-roll
	getest en gecertificeerd middels ETB 14/0251; brandwerende prestaties en toepassingsmethoden voor gebruik in:

bouwdeel ¹⁾

brandwerende wanden vlg. EN 1363-1	- flexibele wand ≥ 100 mm; metalen of houten regels, gipsplaat type A + wand isolatie - massieve wand ≥ 100 mm: (cellen)beton of steenachtig, dichtheid $\geq 600 \text{ kg/m}^3$ - massieve wand ≥ 150 mm: (cellen)beton of steenachtig, dichtheid $\geq 600 \text{ kg/m}^3$ - CLT wand ≥ 100 mm: kruislings verlijmd hout
brandwerende vloeren vlg. EN 1363-1	- massieve vloer ≥ 150 mm: (gas)beton, dichtheid $\geq 600 \text{ kg/m}^3$ - CLT vloer ≥ 140 mm: kruislings verlijmd hout

¹⁾ het bouwdeel moet zijn geclassificeerd vlg. EN 13501-2 voor de gestelde brandweerstand

brandweerstand

toepassingsgebied:	vlg. EN 13501-2 / 1366-3	
EI 30 t/m EI 240: Wrap + Wrap-'n-roll	bouwkundige sparingen tbv buisdoorvoeren: ²⁾	
- PE/PP/PVC	$\leq \text{Ø}160$ mm	ook in PA board
- PP-R	$\leq \text{Ø}125$ mm	
- PP-MD	$\leq \text{Ø}160$ mm	ook met buis mof/sok
- PP-MX	$\leq \text{Ø}160$ mm	ook met buis mof/sok
- aluPE-X	$\leq \text{Ø}75$ mm	met buis isolatie + PA board
- PE-Xa	$\leq \text{Ø}32 (54) \text{ mm}$	ook met buis isolatie
- koper	$\leq \text{Ø}76$ mm	met buis isolatie
- staal	$\leq \text{Ø}219$ mm	met buis isolatie
- gietijzer	$\leq \text{Ø}110$ mm	

²⁾ ondersteun voorzieningen; afstand ophanging: zie principe detail

milieu prestaties	BREEAM	LEED	VOC France	EN 717-1§	EMICODE	M1	Indoor Air
voorbeeld protocollen, bekijk complete lijst	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A+	E1		<input checked="" type="checkbox"/>	Comfort GOLD



gebruiksaanwijzing: applicatie, bevestigingsmiddelen, afwerking & onderhoud: zie TDS

product informatie

Product certificering middels DoP; meer info over certificering van CE bouwproducten via ETB op firetect.nl/certificering

- complete DoP versie: prestatieverklaring + ANNEX BWR2 + ANNEX A; op aanvraag
- web DoP versie: prestatieverklaring + ANNEX BWR2; overige info is te downloaden via firetect.nl/downloads
- schema's FoA; [geschikte producten per type brandwerende afdichting + EI prestatie + product / voeg details](#)
- TDS: [algemene gebruiksaanwijzing + product specs](#)

Raadpleeg firetect.nl/downloads voor actuele versies; product ontwikkeling + brandtesten zijn continue processen bij KLF. Neem contact op met KLF voor [afwijkende](#) EI eisen en (niet)standaard of complexe situaties; mail info@klf.nl

toelichting

FoA schema's toepassingsgebied Firetect® brandwerende bouwmaterialen

certificering

Gebruik FoA schema's als **richtlijn** om snel geschikte Firetect producten binnen classificatie te bepalen.

Applicatie altijd vlg. detaillering zoals vermeld per principe detail; klik EI prestatie in FoA schema.

Product certificering van bouwproducten met CE markering verloopt via prestatieverklaringen (DoPs) in plaats van testrapporten; meer info op www.firetect.nl. Schema's omvatten niet alle test data. Neem voor afwijkende (EI) situaties contact op met KLF: +31 345 63 97 97 of info@klf.nl.

bouwdeel

- product is getest in + gecertificeerd voor bouwdeel, standaard type:
- 1** flexibele wand ≥ 100 mm; metalen of houten regels, gipsplaat type A + wand isolatie
 - 1-n**(xxx) flexibele wand ≥ 100 mm, **niet geïsoleerd**
 - 1-sh**(xxx) schacht wand \geq (xxx) mm, **niet geïsoleerd**
(xxx) = wand dikte in mm; zie in schema's bij EI prestatie
 - 1-sw** sandwich wand ≥ 100 mm
 - 2** massieve wand ≥ 100 mm: (cellen)beton of steenachtig, dichtheid ≥ 600 kg/m³
 - 3** massieve wand ≥ 150 mm: (cellen)beton of steenachtig, dichtheid ≥ 600 kg/m³
 - 4** flexibel plafond ≥ 150 mm: metalen regels, gipsplaat type F
 - 5** massieve vloer ≥ 150 mm: (gas)beton, dichtheid ≥ 600 kg/m³
 - 6** CLT wand ≥ 100 mm
 - 7** CLT vloer ≥ 140 mm

Let op Bouwdeel moet zijn geclassificeerd vlg. EN 13501-2 voor de gestelde brandweerstand.

- getest in bouwdeel type **1** ook toepasbaar in bouwdeel type **2+3** als wanddikte + m³ gewicht gelijk zijn danwel toenemen
- getest in bouwdeel type **2** ook toepasbaar in bouwdeel type **3** als wanddikte + m³ gewicht gelijk zijn danwel toenemen
- getest in PA board ook toepasbaar met **brandwerende mortel** (BW); neem contact op met KLF voor meer info

"you may always upgrade, but never downsize"

buis doorvoeren

- type **kunststof** alle kunststof buizen vlg. [EN normen](#)
- type **metaal** alle koper of staal buizen; ook geschikt voor materiaal met lagere thermische geleiding + smeltpunt minstens gelijk aan getest materiaal
- EI brandweerstand in minuten (integriteit + isolatie)
- U/U + U/C + C/U + C/C buis einde: U = uncapped (open) en C = capped (gesloten), aan resp. blootgestelde / niet blootgestelde zijde
- 1S + 2S PA board gecoat aan 1 zijde (1S) of 2 zijden (2S)

- buis isolatie
 - alle synthetische rubber min. 60 kg/m³ bijv. Armaflex
 - alle glaswol of steenwol min. 75 kg/m³ bijv. Climpipe
 - alle polyolefine schuim min. 28 kg/m³ bijv. Uponor
 - alle PIR min. 33 kg/m³
- LS local sustained = gedeeltelijk geïsoleerde buis; **totale** isolatie lengte in mm door bouwdeel (symmetrisch)
- LI local interrupted = gedeeltelijk geïsoleerde buis; isolatie lengte in mm **aan elke zijde** van bouwdeel
- CS continued sustained = volledig geïsoleerde buis
- CI continued interrupted = volledig geïsoleerde buis, echter onderbroken in bouwdeel

- max. opening zie principe detail, plus:
 - toegestane **overmaatse sparing** ≤ 15 mm bij brandmanchet + wrap; indien groter, gebruik PA board:
wanden: max. 600 x 1200 mm + 25%, vloeren: max. 1000 x 1200 mm t/m 600 x 5000 mm
 - toegestane **'oversized' brandmanchet** ≤ 15 mm, bijv. gebruik Ø90 manchet voor Ø80 buis

Let op Ondersteun buizen; afstand ophanging: zie principe detail.
Zet glaswol of steenwol individueel vast (niet omwikkelen!) met staaldraad; zie principe detail.

Firetect®

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PE + PP + PVC

kunststof mantelbuizen

PP-R

PP-MD

PP-MX

aluPE-X

PE-Xa

koper

staal

stalen mantelbuizen

gietijzer

kabelgoot + ladder / mand

kabels + bundels

brandkleppen

ventilatie roosters

luchtkanaal bekleding

rechte voegen

inbouwdozen

loze sparringen

EN normen kunststof buizen

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FoA schema's toepassingsgebied Firetect® brandwerende bouwmaterialen

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Applicatie altijd vlg. detaillering zoals vermeld per principe detail; klik EI prestatie in FoA schema.

Product certificering van bouwproducten met CE markering verloopt via prestatieverklaringen (DoPs) in plaats van testrapporten; meer info op www.firetect.nl. Schema's omvatten niet alle test data. Neem voor afwijkende (EI) situaties contact op met KLF: +31 345 63 97 97 of info@klf.nl.

kabel doorvoeren

type **voorziening**

alle stalen (gegalvaniseerde) kabelgoten + ladders, niet geperforeerd + geperforeerd

alle stalen (gegalvaniseerde) draadgoten

EI

brandweerstand in minuten (integriteit + isolatie)

optimale bezetting

	configuratie	horizontaal	verticaal
		Min. afstand naar bouw. sparing	LARGE MIXED
Min. afstand tussen voorzieningen	LARGE	5mm	100 mm
	MIXED	20 mm	20 mm

kabelgroepen

KG 1 - klein ommanteld	max. Ø 21mm
KG 2 - medium ommanteld	max. Ø 50mm
KG 3 - groot ommanteld	max. Ø 80mm
KG 4 - data + glasvezel	max. Ø 100mm bundel
KG 5 - niet ommanteld	max. Ø 23mm
mantelbuis, staal of kunststof	max. Ø 16mm

max. opening

zie principe detail

Let op

Ondersteun kabel voorzieningen; afstand ophanging: zie principe detail.

loze sparingen

EI

gaten + sparingen **zonder doorvoeren**

brandweerstand in minuten (integriteit + isolatie)

t/m EI 120 voor toepassing in wanden + vloeren

disclaimer

Raadpleeg www.firetect.nl/downloads voor updates; product ontwikkeling + brandtesten zijn doorlopende processen bij KLF.

Genoemde merken zijn uitsluitend voor illustratief gebruik, ter indicatie van geteste type materialen.

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kunststof mantelbuizen

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PE-Xa

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stalen mantelbuizen

gietijzer

kabelgoot + ladder / mand

kabels + bundels

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loze sparingen

EN normen kunststof buizen

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kunststof buizen

Firetect® brandwerende bouwmaterialen zijn toepasbaar in:

PE
polyethylene**aluPE-X**
verwarming + sanitair
ook wel PEX-AL-PEX,
Al-Composite of Multilayer**PE-Xa**
druk- en warmte bestendig
cross-linked PE**PP**
polypropylene**PP-R**
high pressure + temperature**PP-MD**
low noise**PVC**
polyvinyl chloride**PE-LD + PE-HD**dØ t/m 250 mm
s1 3,2 t/m 22,7 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1519-1
EN 12666-1
EN 12201-2
EN ISO 15494
DIN 8074
DIN 8075
DIN 19535-10bijv. Wavin TS
Agru PE 100
Agru PE 100-RC**aluPE-X**dØ t/m 75 mm
s1 2,0 t/m 7,5 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1519-1
EN 12201-2
EN 12666-1
EN ISO 15494
DIN 8074
DIN 8075
DIN 19535-10bijv. Uponor MLC
TECEflex
Geberit Mepla
Kekelit Kelox KM 110
Rehau Rautitan stabil
Henco Alupex
Bbijv.etube Apex**PE-Xa**dØ t/m 32 (54) mm
s1 2,2 t/m 4,4 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1519-1
EN 12201-2
EN 12666-1
EN 15875
EN ISO 15494
ISO 21003
DIN 8074
DIN 8075
DIN 19535-10bijv. Uponor Aqua
Geberit Mepla
Kekelit Kelox KM 110
Rehau Rautitan flex
Rehau Rautitan stabil**PP**dØ t/m 250 mm
s1 2,7 t/m 22,7 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1451-1
EN ISO 15494
EN ISO 15874
DIN 8077
DIN 8078bijv. Dyka PP
Agru PP-H**PP-R**dØ t/m 110 mm
s1 3,7 t/m 15,1 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1451-1
EN ISO 15494
EN ISO 15874
ISO 21003
DIN 8077
DIN 8078bijv. Aquatherm Blue
Aquatherm Green
Aquatechnik PP-R
Akatherm PP-R
Wavin Pilsa**PP-MD**dØ t/m 160 mm
s1 1,8 t/m 5,4 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1451-1
EN ISO 15494
EN ISO 15874
DIN 8077
DIN 8078bijv. Uponor Decibel
Geberit Silent-PP
Pipelife Master 3
Rehau Raupiano Plus
Poloplast Polo-Kal NG / 3S
Wavin SiTech / AS
Valsir Silere / Triplus**PP-MX**dØ t/m 160 mm
s1 2,7 t/m 5,7 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1451-1
EN ISO 15494
EN ISO 15874
DIN 8077
DIN 8078

bijv. Geberit Silent-Pro

PVC + PVC-C + PVC-UdØ t/m 400 mm
s1 2,7 t/m 22,7 mm

buizen binnen bandbreedte (dØ+s1) vlg.

EN 1329-1
EN 1453-1
EN 1452
EN 1566-1
EN ISO 15493
ISO 15877
DIN 8061
DIN 8062
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kabels + bundels
brandkleppen
ventilatie roosters
luchtkanaal bekleding
rechte voegen
inbouwdozen
loze sparingen

Toepassingsgebied van buizen, getest met Firetect producten

Brandwerende prestaties zijn geldig voor bandbreedte buis diameter **dØ** + buiswanddikte **s1** van hetzelfde buis materiaal.

Per FoA schema (buis **materiaal**) is vermeld welk Firetect product te gebruiken binnen de bandbreedte (dØ+s1).

Installeer voorzieningen altijd vlg. instructies van fabrikant; afstand ophanging ≤ 500mm (wanden) en ≤ 400mm (vloeren).

[EN normen kunststof buizen](#)[toelichting](#)[akoestiek](#)[duurzaamheid](#)

PE + PP + PVC classification ≤ Ø250 mm

Fire performances are valid for **range** of dØ pipe diameter + s1 pipe thickness within the same pipe material:

PE + PP + PVC acc. EN norms
 dØ up to 250 mm
 s1 up to 22,7 mm
 pipe brands eg Pipelife, Agru, Dyka, Wavin

suitable Firetect products within classification: *

dØ	s1	pipe insulation
up to Ø110	2,7 up to 10,0	non-insulated
	PE 3,4 up to 10,0	
	PP 2,7 up to 6,3	
	PVC 2,7 up to 10,0	

dØ	s1	pipe insulation
Ø125	3,1 up to 11,7	non-insulated
	PE 3,9 up to 11,7	
	PP 3,1 up to 7,1 PVC 3,1 up to 11,7	

dØ	s1	pipe insulation
Ø140 - Ø160	4,0 up to 14,6	non-insulated
	PE 4,9 up to 14,6	
	PP 4,0 up to 14,6 PVC 4,0 up to 14,6	

dØ	s1	pipe insulation
Ø200	4,9 up to 18,2	non-insulated
	PE 6,2 up to 18,2	
	PP 4,9 up to 18,2 PVC 4,9 up to 18,2	

dØ	s1	pipe insulation
Ø250	6,2 up to 22,7	non-insulated
	PE 9,6 up to 22,7	
	PP 6,2 up to 22,7 PVC 6,2 up to 22,7	

* Alternatively, use Acrylic sealant or PA sealer for pipes ≤ Ø50mm; see [individual results](#).

Graphite sealant
DoP CPR-14/0273

FMU collar
DoP CPR-14/0251

Wrap
DoP CPR-14/0251

walls	floors
EI 90 in wall 1+2+3 EI 90 in wall 1-n100 EI 30 in wall 1-n75 EI 90 in wall 6	EI 90 in floor 5 EI 90 in floor 7

walls	floors
EI 60 in wall 1+2+3 EI 60 in wall 1-n100 EI 30 in wall 1-n75 also on PA board : screwed on or cast-in	EI120 in ceiling 4 EI 120 in floor 5 EI 90 in floor 7 also on PA board : screwed on or cast-in

walls	floors
EI 120 in wall 1+2+3 2 layer	EI 180 in floor 5 2 layer EI 90 in floor 7 2 layer

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

default:
walls: apply on 2 sides
floors: apply on 1 side
always apply smoke seal Acrylic sealant on 2 sides

default:
walls: apply on 2 sides
floors: apply on 1 side
always apply smoke seal Acrylic sealant on 2 sides

non-standard configurations eg angled, bundled or XL:
up to Ø400mm with FMU collar

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be supported;
support distance walls max. 500mm
support distance floors max. 400mm

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- cast iron
- trays + ladders + wire mesh
- cables + bundles
- fire dampers
- air transfer grilles
- duct cladding
- linear joints
- socket boxes
- blank seals

- how-to-read
- acoustical
- environmental

PP-R classification ≤ Ø125 mm

Fire performances are valid for **range** of dØ pipe diameter + s1 pipe thickness within the same pipe material:

PP-R acc. EN norms
 dØ 40 up to 125 mm
 s1 3,7 up to 17,1 mm

pipe brands eg Aquatherm, Aquatechnik, Wavin Pilsa

suitable Firetect products within classification:

		Graphite sealant DoP CPR-14/0273		FMU collar DoP CPR-14/0251		Wrap DoP CPR-14/0251	
dØ	s1	walls	floors	walls	floors	floors	
Ø40	3,7 up to 5,5 + pipe insulation + polythylene rubber, min. 25 kg/m ³ 25 mm	EI 120 in wall 1+2 EI 240 in wall 3	results max. EI 240 in floor 5	results max. EI 120 in wall 1+2 EI 240 in wall 3 collar Ø40	results max. EI 240 in floor 5 collar Ø40		
		individual result: EI 60 in wall 1-n100 in PA board					
Ø50	4,6 non-insulated	individual result: EI 60 in wall 1-n75					
Ø63	5,8 up to 8,6 non-insulated	results max. EI 120 in wall 1+2 EI 240 in wall 3	results max. EI 240 in floor 5	EI 90 in wall 1+2 EI 120 in wall 3 collar Ø63	results max. EI 120 in floor 5 collar Ø63		
		individual result: EI 60 in wall 1-n75					
Ø75	6,8 up to 10,3 s1 up to 10,3 non-insulated	results max. EI 120 in wall 1+2 EI 240 in wall 3	results max. EI 240 in floor 5	EI 90 in wall 1+2 EI 120 in wall 3 collar Ø75	EI 120 in floor 5 collar Ø75		
		individual result: EI 60 in wall 1-n75					
Ø90	8,2 + pipe insulation + polythylene rubber, min. 25 kg/m ³ 25 mm	individual result: EI 60 in wall 1-n100					
Ø110	10,0 up to 15,1 non-insulated	results max. EI 120 in wall 1+2+3	results max. EI 180 in floor 5	EI 60 in wall 1+2+3 collar Ø110	results max. EI 120 in floor 5 collar Ø110		
		individual result: EI 60 in wall 1-n75					
Ø125	11,4 up to 17,1 non-insulated			results max. EI 180 in floor 5 collar Ø125	EI 240 in floor 5	3 layer	
		joint details: min. W x D, default: walls: 10 x 40 mm, apply on 2 sides floors: 15 x 40mm, apply on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smoke seal Acrylic sealant on 2 sides		default: floors: apply on 1 side always apply smoke seal Acrylic sealant on 2 sides	

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- flexible wall ≥ 100 mm, insulated
- flexible wall ≥ (xxx) mm, **non-insulated**
- shaft wall ≥ (xxx) mm, **non-insulated**
- sandwich wall ≥ 100 mm
- rigid wall ≥ 100 mm
- rigid wall ≥ 150 mm
- flexible ceiling ≥ 150 mm
- rigid floor ≥ 150 mm
- CLT wall ≥ 100 mm
- CLT floor ≥ 140 mm

Max. **opening** in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be **supported**;
 support distance walls max. 500mm
 support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI:
 see **principle detail**.

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- steel
- steel conduits
- cast iron
- trays + ladders + wire mesh
- cables + bundles
- fire dampers
- air transfer grilles
- duct cladding
- linear joints
- socket boxes
- blank seals
- EN norms for plastic pipes
- how-to-read
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PP-MD classification ≤ Ø160 mm

Fire performances are valid for **range of dØ** pipe diameter + **s1** pipe thickness within the same pipe material:

PP-MD acc. EN norms
 dØ 32 up to 160 mm
 s1 1.8 up to 5.4 mm
 pipe brands eg Uponor, Poloplast, Rehau, Geberit, Pipelife
 acoustical damper brands eg Uponor Bottom Bend

suitable Firetect products within classification:

		Graphite sealant DoP CPR-14/0273		FMU collar DoP CPR-14/0251		Wrap DoP CPR-14/0251			
dØ	s1	walls	floors	walls	floors	walls	floors		
Ø32	1,8	non-insulated	EI 120 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5	EI 120 in wall 1+2 EI 240 in wall 3 collar Ø40	EI 240 in floor 5 collar Ø40	EI 120 in wall 1+2 EI 180 in wall 3 1 layer	EI 180 in floor 5 2 layer	
Ø50	2,0	non-insulated	EI 90 in wall 1+2 EI 180 in wall 3	EI 180 in floor 5	EI 120 in wall 1+2 EI 180 in wall 3 collar Ø50	EI 240 in floor 5 collar Ø50	EI 120 in wall 1+2 EI 240 in wall 3 1 layer	EI 240 in floor 5 1 layer	
Ø75	2,6	non-insulated	EI 60 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5	EI 120 in wall 1+2 EI 240 in wall 3 collar Ø75	EI 240 in floor 5 collar Ø75	EI 120 in wall 1+2 EI 240 in wall 3 1 layer	EI 240 in floor 5 1 layer	
Ø110	3,8	non-insulated	+ pipe socket	EI 60 in wall 1+2+3	EI 60 in floor 5	EI 120 in wall 1+2+3 collar Ø110	EI 180 in floor 5 collar Ø110	EI 120 in wall 1+2+3 2 layer	EI 240 in floor 5 2 layer
							EI 90 in floor 7 collar Ø160 in FR Mortar or PA board		EI 90 in floor 7 2 layer
						EI 60 in wall 1+2+3 collar Ø140	EI 240 in floor 5 collar Ø140	EI 90 in wall 1+2+3 3 layer	
							EI 90 in floor 7 collar Ø160 in FR Mortar or PA board		
Ø160	5,4	non-insulated	+ pipe socket	EI 60 in wall 1+2+3 collar Ø160	EI 180 in floor 5 collar Ø160			EI 240 in floor 5 3 layer	
				EI 60 in wall 1+2+3 collar Ø200					
		joint details: min. W x D, default: walls: 10 x 25 mm, apply on 2 sides floors: 15 x 25 mm, apply on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smoke seal Acrylic sealant on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smoke seal Acrylic sealant on 2 sides			

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. **opening** in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be **supported**;
 support distance walls max. 500mm
 support distance floors max. 400mm

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PP-MX classification ≤ Ø160 mm

Fire performances are valid for **range of dØ** pipe diameter + **s1** pipe thickness within the same pipe material:

PP-MX acc. EN norms

dØ 50 up to 160 mm
s1 2,7 up to 5,7 mm
pipe brands eg Geberit

suitable Firetect products within classification:

		Graphite sealant DoP CPR-14/0273		FMU collar DoP CPR-14/0251		Wrap DoP CPR-14/0251	
dØ	s1	walls	floors	walls	floors	walls	floors
Ø50	2,7	non-insulated		EI 120 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5	EI 90 in wall 1+2 EI 240 in wall 3 collar Ø50	EI 240 in floor 5 collar Ø50
		+ pipe socket		EI 120 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5	EI 120 in wall 1+2 EI 240 in wall 3 collar Ø63	EI 240 in floor 5 collar Ø63
Ø110	4,2	non-insulated		EI 90 in wall 1+2+3	EI 60 in floor 5	EI 90 in wall 1+2+3 collar Ø110	EI 240 in floor 5 collar Ø110
		+ pipe socket			EI 240 in floor 5	EI 90 in wall 1+2+3 collar Ø125	EI 240 in floor 5 collar Ø125
Ø125	4,7	non-insulated		EI 120 in wall 1+2+3 collar Ø125		EI 180 in floor 5 collar Ø125	EI 120 in floor 5
		+ pipe socket				EI 180 in floor 5 collar Ø140	EI 240 in floor 5 3 layer
Ø160	5,7	non-insulated				EI 120 in floor 5 collar Ø160	EI 90 in wall 1+2+3 3 layer
		+ pipe socket		EI 120 in wall 1+2+3 collar Ø200	EI 180 in floor 5 collar Ø200	EI 120 in wall 1+2+3 3 layer	EI 240 in floor 5 3 layer
		joint details: min. W x D, default: walls: 10 x 25 mm, apply on 2 sides floors: 10 x 25 mm, apply on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smokesseal Acrylic sealant on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smokesseal Acrylic sealant on 2 sides	

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be supported; support distance walls max. 500mm support distance floors max. 400mm

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aluPE-X (composite) classification ≤ Ø75 mm

Fire performances are valid for range of dØ pipe diameter + s1 pipe thickness within the same pipe material:

aluPE-X (composite) acc. EN norms
 dØ 16 up to 75 mm
 s1 2.0 up to 7.5 mm
 pipe brands eg Uponor, Rehau, Geberit, Henco
 pipe insulation brands eg Climpipe, Rockwool, Armaflex, U Protect Pipe Section Alu2

dØ s1 pipe insulation

up to Ø25 2.0 up to 2.5 non-insulated

Ø16 up to Ø75 + synth. rubber insulation 2.0 up to 7.5 + pipe insulation + synth. rubber, min. 60 kg/m³ up to 13mm

Ø16 up to Ø75 + glass or rock wool (alu) insulation 2.0 up to 7.5 + pipe insulation + glass or rock wool (alu), min. 75 kg/m³ 20 + 30mm 40mm 50mm 60mm 80mm

suitable Firetect products within classification:

Graphite sealant DoP CPR-14/0273 **Acrylic sealant or PA sealer** DoP CPR-14/0273 **FMU collar** DoP CPR-14/0251 **Wrap** DoP CPR-14/0251

walls floors walls floors floors walls floors

EI 120 in wall 1+2+3

EI 120 in wall 1+2+3

EI 60 in wall 1+2+3
EI 90 in wall 1-n100
EI 60 in wall 1-n75
also in PA board
individual results max.
EI 90 in floor 5
EI 90 in floor 7

EI 120 in wall 3
EI 90 in wall 6
EI 120 in floor 5
EI 90 in floor 7
10 x 25 mm

EI 90 in floor 7
collar Ø50 - Ø90

EI 60 in wall 1+2+3
2 layer
also in PA board
EI 90 in floor 7
2 layer

EI 120 in wall 2+3
in FR Mortar

EI 60 in wall 2+3
in FR Mortar

EI 90 in wall 2+3
1 layer
in FR Mortar

EI 120 in wall 1+2
EI 240 in wall 3
EI 240 in floor 5

EI 240 in floor 5

EI 120 in wall 1+2
EI 240 in wall 3
1 layer
EI 240 in floor 5
2 layer

EI 120 in wall 1+2
EI 240 in wall 3
EI 240 in floor 5

EI 240 in floor 5

EI 120 in wall 1+2
EI 240 in wall 3
1 layer
EI 240 in floor 5
2 layer

EI 120 in wall 1+2
EI 240 in wall 3
EI 240 in floor 5

EI 240 in floor 5

EI 120 in wall 1+2
EI 240 in wall 3
2 layer
EI 240 in floor 5
2 layer

EI 120 in wall 1+2
EI 240 in wall 3
EI 240 in floor 5

EI 240 in floor 5

EI 120 in wall 1+2+3
3 layer
EI 120 in floor 5
3 layer

EI 120 in wall 1+2
EI 240 in wall 3
EI 240 in floor 5

EI 240 in floor 5

EI 120 in wall 1+2+3
3 layer
EI 120 in floor 5
3 layer

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

floors: apply on 1 side
always apply smoke seal
Acrylic sealant on 2 sides

default:
walls: apply on 2 sides
floors: apply on 1 side
always apply smoke seal Acrylic sealant on 2 sides

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, non-insulated
- 1-sh: shaft wall ≥ (xxx) mm, non-insulated
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be supported; support distance walls max. 500mm support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI: see principle detail.

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- steel conduits
- cast iron
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- cables + bundles
- fire dampers
- air transfer grilles
- duct cladding
- linear joints
- socket boxes
- blank seals

EN norms for plastic pipes

how-to-read

acoustical

environmental

PE-Xa classification ≤ Ø54 mm

Fire performances are valid for range of dØ pipe diameter + s1 pipe thickness within the same pipe material:
PE-Xa acc. EN norms
dØ 15(28) up to 32(54) mm
s1 2.2 up to 4.4 mm
pipe brands eg Uponor, Rehau, Gebelit
pipe insulation brands eg Uponor, Armaflex

dØ	s1	pipe insulation
Ø15 (28)	2.5	non-insulated
		+ pipe insulation + polyolefin rubber, min. 28 kg/m ³ 10mm
Ø16 (25)	2.2	non-insulated
		+ pipe insulation + polyolefin rubber, min. 28 kg/m ³ 10mm
Ø32 (54)	4.4	non-insulated
		+ pipe insulation + polyolefin rubber, min. 28 kg/m ³ 20mm

suitable Firetect products within classification:

Graphite sealant DoP CPR-140273		Acrylic sealant or PA sealer DoP CPR-140273		FMU collar DoP CPR-140251		Wrap DoP CPR-140251	
walls	floors	walls	floors	walls	floors	walls	floors
EI 90 in wall 1+2 EI 240 in wall 3 EI 60 in wall 1-sh75 on PA board	EI 240 in floor 5	EI 90 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5	EI 60 in wall 1+2 EI 240 in wall 3 collar Ø40	EI 240 in floor 5 collar Ø40	EI 120 in wall 1+2 EI 240 in wall 3 1 layer	EI 240 in floor 5 1 layer
EI 120 in wall 1+2 EI 240 in wall 3 EI 60 in wall 1-sh75 on PA board	EI 240 in floor 5			EI 120 in wall 1+2 EI 120 in wall 3 collar Ø50	EI 120 in floor 5 collar Ø50	EI 120 in wall 1+2 EI 240 in wall 3 2 layer	EI 240 in floor 5 2 layer
EI 120 in wall 1+2 EI 240 in wall 3 EI 60 in wall 1-sh75 on PA board	EI 240 in floor 5						
EI 120 in wall 1+2 EI 240 in wall 3 EI 60 in wall 1-sh75 on PA board	EI 240 in floor 5	EI 120 in wall 1+2 EI 240 in wall 3 EI 90 in wall 6 EI 90 in wall 7	EI 240 in floor 5 EI 90 in floor 7	EI 120 in wall 1+2 EI 240 in wall 3 collar Ø40	EI 240 in floor 5 collar Ø40	EI 120 in wall 1+2 EI 240 in wall 3 1 layer	EI 240 in floor 5 1 layer
EI 120 in wall 1+2 EI 240 in wall 3	EI 240 in floor 5			EI 120 in wall 1+2 EI 120 in wall 3 collar Ø50	EI 120 in floor 5 collar Ø50	EI 120 in wall 1+2 EI 240 in wall 3 1 or 2 layer	EI 240 in floor 5 2 layer
EI 120 in wall 1+2 EI 240 in wall 3 EI 60 in wall 1-sh75 on PA board	EI 240 in floor 5	EI 60 in wall 1+2 EI 180 in wall 3 EI 180 in floor 5	EI 180 in floor 5	EI 120 in wall 1+2 EI 240 in wall 3 collar Ø63	EI 240 in floor 5 collar Ø63	EI 120 in wall 1+2 EI 240 in wall 3 1 layer	EI 240 in floor 5 1 layer
EI 90 in wall 1+2 EI 120 in wall 3	EI 90 in floor 5			EI 60 in wall 1+2 EI 240 in wall 3 collar Ø110	EI 240 in floor 5 collar Ø110	EI 90 in wall 1+2 EI 240 in wall 3 2 layer	EI 240 in floor 5 2 layer
joint details: min. W x D, default: walls: 10 x 25 mm, apply on 2 sides floors: 15 x 25 mm, apply on 2 sides		joint details: min. W x D, default: walls: 10 x 25 mm, apply on 2 sides floors: 15 x 25 mm, apply on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smokesseal Acrylic sealant on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smokesseal Acrylic sealant on 2 sides	

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be **supported**; support distance walls max. 500mm support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI: see principle detail.

'eccentric to zero' position in opening is allowed

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- EN norms for plastic pipes
- how-to-read
- acoustical
- environmental

COPPER classification ≤ Ø76 mm

Fire performances are valid for range of dØ pipe diameter + s1 pipe thickness within the same pipe material:

copper	
dØ	max. 76 mm
s1	max. 14.0 mm

pipe insulation brands eg Climpipe, Rockwool, Armaflex, U Protect Pipe Section Alu2

suitable Firetect products within classification:

dØ	s1	pipe insulation	Graphite sealant DoP CPR-14/0273		Acrylic sealant or PA sealer DoP CPR-14/0273		Wrap DoP CPR-14/0251	
			walls	floors	walls	floors	walls	floors
up to Ø28	1,0 up to 1,2	non-insulated	individual results max. EI 180 in wall	individual results max. EI 180 in floor 5	individual results max. EI 120 in wall	individual results max. EI 120 in floor 5		
up to Ø42 + synth. rubber or rock wool (alu) insulation	1,0 up to 14,0	+ pipe insulation + synth. rubber, min. 60 kg/m ³	individual results max. EI 90 in wall 1+2+3 EI 60 in wall 1-n75	individual results max. EI 90 in floor 7	individual results max. EI 120 in wall 3	individual results max. EI 120 in floor 5		individual results max. EI 90 in floor 7
			individual result: EI 90 in wall 1-n100					
			individual results max. EI 60 in wall 1-n75					
+ synth. rubber or rock wool (alu), min. 90 kg/m ³	25mm		EI 60 in wall 1+2+3					
			individual results max. EI 90 in wall 1-n100 EI 60 in wall 1-n75 EI 120 in wall 3		individual results max. EI 120 in floor 5			
up to Ø76 + glass or rock wool (alu) insulation	1,0 up to 2,1	+ pipe insulation + glass or rock wool (alu), min. 75 kg/m ³	EI 90 in wall 1+2+3	EI 90 in floor 5			EI 90 in wall 1+2 EI 120 in wall 3 2 layer	EI 120 in floor 5 2 layer
			EI 90 in wall 1+2+3	EI 90 in floor 5			EI 90 in wall 1+2 EI 120 in wall 3 1 layer	EI 120 in floor 5 2 layer
			EI 90 in wall 1+2+3	EI 90 in floor 5			EI 90 in wall 1+2 EI 120 in wall 3 2 layer	EI 120 in floor 5 2 layer
20 up to 30mm	40mm		EI 90 in wall 3	EI 90 in floor 5			EI 60 in wall 1+2 EI 120 in wall 3 3 layer	EI 120 in floor 5 3 layer
			EI 240 in wall 3	EI 240 in floor 5			EI 60 in wall 1+2 EI 120 in wall 3 3 layer	EI 120 in floor 5 3 layer

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, non-insulated
- 1-sh: shaft wall ≥ (xxx) mm, non-insulated
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger, see how-to-read.

Penetration services must be supported; support distance walls max. 500mm support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI: see principle detail.

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- trays + ladders + wire mesh
- cables + bundles
- fire dampers
- air transfer grilles
- duct cladding
- linear joints
- socket boxes
- blank seals

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

default:
walls: apply on 2 sides
floors: apply on 1 side
always apply smokesesel Acrylic sealant on 2 sides

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- environmental

STEEL classification ≤ Ø219 mm

Fire performances are valid for **range of dØ pipe diameter + s1 pipe thickness** within the same pipe material:

steel
dØ max. 219,1 mm
s1 max. 14,2 mm

pipe insulation brands eg Climpsipe, Rockwool, Armaflex, U Protect Pipe Section Alu2

dØ	s1	pipe insulation
steel Ø12 up to Ø219	1,0 up to 4,5 mm	non-insulated
	Ø12 up to Ø219 mm	
	1,0 up to 14,2 mm	+ pipe insulation
	Ø15 up to Ø219 mm	+ synth. rubber, min. 60 kg/m ³
	10mm	
	13mm	
	25mm	
	1,0 up to 14,2 mm	+ pipe insulation
	Ø15 up to Ø219 mm	+ glass or rock wool (alu), min. 75 kg/m ³
	20 up to 30mm	
40mm		
50mm		
60mm		
80mm		
1,0 up to 14,2 mm	+ pipe insulation	
Ø15 up to Ø219 mm	+ rock wool (alu), min. 90 kg/m ³	
25mm		
50mm		
3,25 up to 14,2 mm	+ pipe insulation	
Ø42 up to Ø219 mm	+ PIR, min. 33 kg/m ³	
25mm		
50mm		

suitable Firetect products within classification:

Graphite sealant DoP CPR-14/0273		Acrylic sealant or PA sealer DoP CPR-14/0273		Wrap DoP CPR-14/0251	
walls	floors	walls	floors	walls	floors
individual results max. EI 120 in wall	individual results max. EI 120 in floor 5	individual results max. EI 180 in wall	individual results max. EI 180 in floor 5		
EI 90 in wall 1+2+3	EI 90 in floor 5				
individual results max. EI 120 in wall 1-n100 EI 60 in wall 1-n75	EI 60 in floor 5 EI 90 in floor 7	individual results max. EI 120 in wall 3	individual results max. EI 120 in floor 5	EI 90 in floor 7 2 layer	
EI 60 in wall 1+2+3 EI 60 in wall 1-n100	EI 60 in floor 5				
individual results max. EI 60 in wall 1-n75					
EI 60 in wall 1+2+3	EI 90 in floor 5			EI 60 in wall 1+2+3 1 layer	EI 90 in floor 5 2 layer
EI 60 in wall 1+2+3	EI 90 in floor 5			EI 90 in wall 1+2+3 1 layer	EI 90 in floor 5 2 layer
EI 90 in wall 1+2+3	EI 90 in floor 5			EI 120 in wall 1+2+3 2 layer	EI 120 in floor 5 2 layer
EI 90 in wall 1+2+3	EI 90 in floor 5			EI 60 in wall 1+2+3 3 layer	EI 120 in floor 5 3 layer
EI 90 in wall 1+2+3	EI 180 in floor 5			EI 60 in wall 1+2+3 3 layer	EI 120 in floor 5 3 layer
EI 60 in wall 1+2+3		EI 120 in wall 3 EI 60 in wall 1-n100 individual results max. EI 30 in wall 1-n75	EI 120 in floor 5 also on PA board		
EI 90 in wall 1+2+3		individual results max. EI 90 in wall 1-n100			
EI 60 in wall 1+2+3	EI 180 in floor 5				
EI 60 in wall 1+2+3	EI 90 in floor 5				

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

joint details: min. W x D, default:
walls: 10 x 25 mm, apply on 2 sides
floors: 15 x 25 mm, apply on 2 sides

default:
walls: apply on 2 sides
floors: apply on 1 side
always apply smoke seal Acrylic sealant on 2 sides

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- 1: flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- 2: rigid wall ≥ 100 mm
- 3: rigid wall ≥ 150 mm
- 4: flexible ceiling ≥ 150 mm
- 5: rigid floor ≥ 150 mm
- 6: CLT wall ≥ 100 mm
- 7: CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be **supported**; support distance walls max. 500mm support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI: see principle detail.

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NOTE:
CONDUITS: see STEEL CONDUITS
SPIRAL pipes: see AIR CONTROL

- EN norms for plastic pipes
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CAST IRON ≤ Ø110 mm

Fire performances are valid for **range** of dØ pipe diameter + s1 pipe thickness within the same pipe material:

cast iron
dØ max. 110 mm
s1 max. 3,5 mm
pipe insulation brands eg Rockwool, Armaflex

dØ	s1	pipe insulation
steel Ø12 up to Ø219	3,5 mm	non-insulated Ø58 up to Ø110 mm
	3,5 mm	+ pipe insulation Ø58 up to Ø110 mm + synth. rubber , min. 60 kg/m ³ 13mm
	3,5 mm	+ rock wool (alu), min. 85 kg/m ³ Ø58 up to Ø110 mm 20mm
		30mm

suitable Firetect products within classification:

Acrylic sealant or PA sealer DoP CPR-14/0273		Wrap DoP CPR-14/0251	
walls	floors	walls	floors
		max. EI 90 in wall 6 2 layer	max. EI 90 in floor 7 2 layer
EI 90 in wall 6	EI 90 in floor 7		
EI 90 in wall 6	EI 90 in floor 7		
joint details: min. W x D, default: walls: 5 x 25 mm, apply on 2 sides floors: 5 x 25 mm, apply on 2 sides		default: walls: apply on 2 sides floors: apply on 2 sides always apply smoke seal Acrylic sealant on 2 sides	

supporting construction

Constructive element must be classified acc. EN 13501-2 for the required fire resistance period:

- flexible wall ≥ 100 mm, insulated
- 1-n: flexible wall ≥ (xxx) mm, **non-insulated**
- 1-sh: shaft wall ≥ (xxx) mm, **non-insulated**
- 1-sw sandwich wall ≥ 100 mm
- rigid wall ≥ 100 mm
- rigid wall ≥ 150 mm
- flexible ceiling ≥ 150 mm
- rigid floor ≥ 150 mm
- CLT wall ≥ 100 mm
- CLT floor ≥ 140 mm

Max. opening in constructive element: see principle detail. Use PA board if opening is larger; see how-to-read.

Penetration services must be **supported**;
support distance walls max. 500mm
support distance floors max. 400mm

Min. length pipe insulation LI / LS / CS / CI:
see principle detail.

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