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, Geberit
pipe insulation brands eg Uponor, Armaflex

suitable Firetect products within classification:

dØ	s1	pipe insulation	Graphite sealant DoP CPR-14/0273 walls	Graphite sealant DoP CPR-14/0273 floors	Acrylic sealant or PA sealer DoP CPR-14/0273 walls	Acrylic sealant or PA sealer DoP CPR-14/0273 floors	FMU collar DoP CPR-14/0251 walls	FMU collar DoP CPR-14/0251 floors	Wrap DoP CPR-14/0251 walls	Wrap DoP CPR-14/0251 floors
Ø15 (28)	2,5	non-insulated	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
		+ pipe insulation + **polyolefin rubber**, min. 28 kg/m³ 10mm	EI 120 in wall 1+2 EI 240 in wall 3 EI60 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
Ø16 (25)	2,2	non-insulated	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 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
		+ pipe insulation + **polyolefin rubber**, min. 28 kg/m³ 10mm	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
Ø32 (54)	4,4	non-insulated	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 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
		+ pipe insulation + **polyolefin rubber**, min. 28 kg/m³ 20mm	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 smokeseal Acrylic sealant on 2 sides		default: walls: apply on 2 sides floors: apply on 1 side always apply smokeseal Acrylic sealant on 2 sides	

'eccentric to zero' position in opening is allowed

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.

► INDEX
PE + PP + PVC
plastic cable conduits
PP-R
PP-MD
PP-MX
aluPE-X
PE-Xa
copper
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
acoustical
environmental

How-to-read

charts Field of Application Firetect® fire rated building products

certification

Use FoA charts as *guideline* to quickly identify suitable Firetect products within classification.

Always apply acc. details as stated per principle detail; click EI performance in chart.

Product certification of CE marked building products is done by DoPs (Declaration of Performance), rather than test reports; more info at www.firetect.eu. Charts do not include all test data. Contact KLF for non-standard (EI) requirements: +31 345 63 97 97 or info@klf.nl.

supporting construction

product has been tested in + certified for constructive element, default type:

1	flexible wall ≥ 100 mm; metal or timber studs, plaster board type A + wall insulation
1-n(xxx)	flexible wall ≥ (xxx) mm; metal or timber studs, plaster board type F, **no** wall insulation
1-sh(xxx)	shaft wall ≥ (xxx) mm, **non**-insulated
	(xxx) = wall thickness in mm; see in charts with EI performance
1-sw	sandwich wall ≥ 100 mm
2	rigid wall ≥ 100 mm: blockwork/concrete/masonry, density ≥ 600 kg/m^3
3	rigid wall ≥ 150 mm: blockwork/concrete/masonry, density ≥ 600 kg/m^3
4	flexible ceiling ≥ 150 mm: metal studs, plaster board type F
5	rigid floor ≥ 150 mm: (aerated) concrete, density ≥ 600 kg/m^3
6	CLT wall ≥ 100 mm
7	CLT floor ≥ 140 mm

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

tested in construction type **1**	also applicable in constructive element type **2+3** if wall thickness + m^3 weight are either equal or increased
tested in construction type **2**	also application in constructive element type **3** if wall thickness + m^3 weight are either equal or increased
tested in PA board	also applicable in FR Mortar fireseal; contact KLF for more info

"you may always upgrade, but never downsize"

pipe penetrations

type of plastic	all plastic pipe types acc. EN norms
type of metal	all copper or steel or pipes; also suitable for material with lower thermal conductivity + melting point at least equal to tested material
EI	fire resistance in minutes (integrity + insulation)
U/U + U/C + C/U + C/C	pipe end: U = uncapped and C = capped, at resp. exposed / unexposed side
1S + 2S	PA board coated on 1 side (1S) or 2 sides (2S)

pipe insulation

- all synthetic rubber min. 60 kg/m^3 eg Armaflex
- all glass wool or rock wool min. 75 kg/m^3 eg Climpipe or U Protect Pipe Section Alu2
- all polyolefin foam min. 28 kg/m^3 eg Uponor
- all PIR min. 33 kg/m^3

LS	local sustained = partly insulated pipe; total insulation length in mm through constructive element (symmetrically)
LI	local interrupted = partly insulated pipe; insulation length in mm on either side of constructive element
CS	continued sustained = fully insulated pipe
CI	continued interrupted = fully insulated pipe, yet interrupted in constructive element

max. opening

see principle detail, plus:
- allowed oversize opening ≤ 15mm with collar + wrap; if larger, use PA board:
  walls: max. 600 x 1200 mm + 25%, floors: max. 1000 x 1200 mm up to 600 x 5000 mm
- allowed 'oversized' collar ≤ 15mm, eg use Ø90 collar for Ø80 pipe

Note Support pipes; support distance: see principle detail.
Fasten glass wool or rock wool individually (not wrapped!) with steel wire; see principle detail.

How-to-read

charts Field of Application Firetect® fire rated building products

certification

Use FoA charts as *guideline* to quickly identify suitable Firetect products within classification.

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cable penetrations

type of service: all steel (galvanised) cable trays + ladders, non-perforated + perforated

all steel (galvanised) mesh wire cable trays

EI: fire resistance in minutes (integrity + insulation)

minimum working spaces

	configuration	horizontal	vertical
Min. distances from opening edges	LARGE	35mm	30 mm
	MIXED	30 mm	0 mm
Min. distances between services	LARGE	5mm	100 mm
	MIXED	20 mm	20 mm

cable groups

group 1 - small sheathed	max. Ø 21mm
group 2 - medium sheathed	max. Ø 50mm
group 3 - large sheathed	max. Ø 80mm
group 4 - data + fibre optic	max. Ø 100mm bundle
group 5 - non-sheathed	max. Ø 23mm
conduit, steel or plastic	max. Ø 16mm

max. opening: see principle detail

Note: Support cable services; support distance: see principle detail.

blank seals

gaps + openings without any service penetrations

EI: fire resistance in minutes (integrity + insulation)

up to EI 120 for application in walls + floors

disclaimer

Consult www.firetect.eu/download for updates; product development + fire tests are ongoing processes at KLF.

Mentioned brand names are for illustrative purpose only, to indicate type of material tested.

FoA plastic pipes

Firetect® fire rated building products are applicable for:

PE
polyethylene

aluPE-X
heating + water supply
aka PEX-AL-PEX,
Al-Composite or Multilayer

PE-Xa
high pressure + temperature
cross-linked PE

PE-LD + PE-HD	aluPE-X	PE-Xa
dØ up to 250 mm	dØ up to 75 mm	dØ up to 32 (54) mm
s1 3,2 up to 22,7 mm	s1 2,0 up to 7,5 mm	s1 2,2 up to 4,4 mm
pipes within range (dØ+s1) acc.	pipes within range (dØ+s1) acc.	pipes within range (dØ+s1) acc.
EN 1519-1	EN 1519-1	EN 1519-1
EN 12666-1	EN 12201-2	EN 12201-2
EN 12201-2	EN 12666-1	EN 12666-1
EN ISO 15494	EN ISO 15494	EN 15875
DIN 8074	DIN 8074	EN ISO 15494
DIN 8075	DIN 8075	ISO 21003
DIN 19535-10	DIN 19535-10	DIN 8074
		DIN 8075
		DIN 19535-10
eg Wavin TS	eg Uponor MLC	eg Uponor Aqua
Agru PE 100	TECEflex	Geberit Mepla
Agru PE 100-RC	Geberit Mepla	Kekelit Kelox KM 110
	Kekelit Kelox KM 110	Rehau Rautitan flex
	Rehau Rautitan stabil	Rehau Rautitan stabil
	Henco Alupex	
	Begetube Alpex	

PP
polypropylene

PP-R
high pressure + temperature

PP-MD
low noise

PP	PP-R	PP-MD	PP-MX
dØ up to 250 mm	dØ up to 110 mm	dØ up to 160 mm	dØ up to 160 mm
s1 2,7 up to 22,7 mm	s1 3,7 up to 15,1 mm	s1 1,8 up to 5,4 mm	s1 2,7 up to 5,7 mm
pipes within range (dØ+s1) acc.	pipes within range (dØ+s1) acc.	pipes within range (dØ+s1) acc.	pipes within range (dØ+s1) acc.
EN 1451-1	EN 1451-1	EN 1451-1	EN 1451-1
EN ISO 15494	EN ISO 15494	EN ISO 15494	EN ISO 15494
EN ISO 15874	EN ISO 15874	EN ISO 15874	EN ISO 15874
DIN 8077	ISO 21003	DIN 8077	DIN 8077
DIN 8078	DIN 8077	DIN 8078	DIN 8078
	DIN 8078		
eg Dyka PP	eg Aquatherm Blue	eg Uponor Decibel	eg Geberit Silent-Pro
Agru PP-H	Aquatherm Green	Geberit Silent-PP	
	Aquatechnik PP-R	Pipelife Master 3	
	Akatherm PP-R	Rehau Raupiano Plus	
	Wavin Pilsa	Poloplast Polo-Kal NG / 3S	
		Wavin SiTech / AS	
		Valsir Silere / Triplus	

PVC
polyvinyl chloride

PVC + PVC-C + PVC-U
dØ up to 400 mm
s1 2,7 up to 22,7 mm
pipes within range (dØ+s1) acc.
EN 1329-1
EN 1453-1
EN 1452
EN 1566-1
EN ISO 15493
ISO 15877
DIN 8061
DIN 8062
DIN 19531-10

Scope of pipes tested with Firetect products

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

*Per Foa chart (pipe **material**) is stated what Firetect product to use within range (dØ+s1).*

Always install services acc. manufacturer's instructions; support distance ≤ 500mm (walls) and ≤ 400mm (floors).