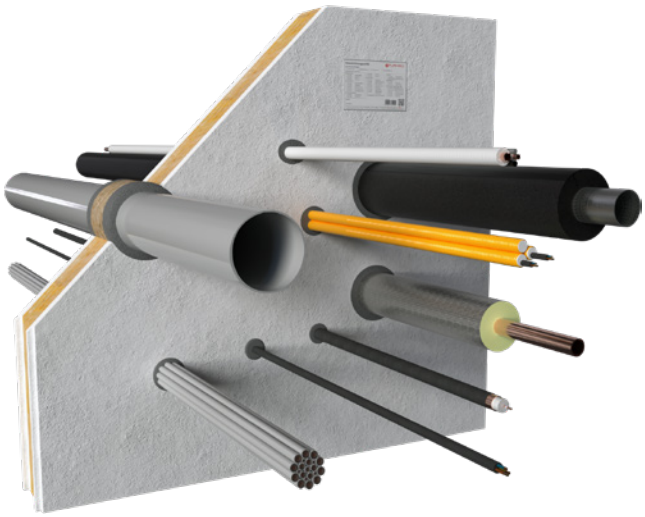
System DG-SC

Simple penetration sealing system with intumescent filler



Fire Resistance Class

max. EI 120 in acc. with EN 13501-2

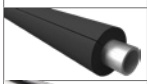
Field of Application

- plasterboard wall, solid wall, floor, shaft wall

Benefits

- flexible size of annular gap 10–50 mm
- annular gap can be sealed with or without a backfilling of mineral wool
- zero distance for multilayer pipes in shaft walls
- plastic pipes classified up to EI 120 U/U (open/open)

Allowed Services

			max. diameter*
	Cables		≤ 61
	Cable bundles		≤ 180 / ≤ 21
	Coaxial cables		≤ 51.1
	EIC	single	≤ 32 / ≤ 21
	EIC	bundles	≤ 100 / ≤ 32 / ≤ 21
	Combustible pipes		≤ 110
	Multilayer pipes		≤ 75
	Non-combustible pipes with mineral fibre insulation		
	Steel		≤ 114
	Copper		≤ 88.9
	Non-combustible pipes with FEF insulation		≤ 54
	HVAC split line combinations		✓

*All specifications in mm

System Data

Certificate of usability		ETA-16/0268
Thickness of structural element	wall	≥ 100
	shaft wall	≥ 40
	floor	≥ 150
Sealing thickness	wall	≥ 100
	shaft wall	≥ 40
	floor	≥ 150
Size of annular gap	wall/floor	≥ 10 – ≤ 25/50
	shaft wall	≥ 10 – ≤ 25
Depth of annular gap per side	wall/floor	≥ 25
	shaft wall	≥ 20

All specifications in mm

Flamro Brandschutz-Systeme GmbH • Am Sportplatz 2 • 56291 Leiningen • Germany
T +49 6746 9410-0 • F +49 6746 9410-10 • www.flamro.de • info@flamro.com

System DG-SC

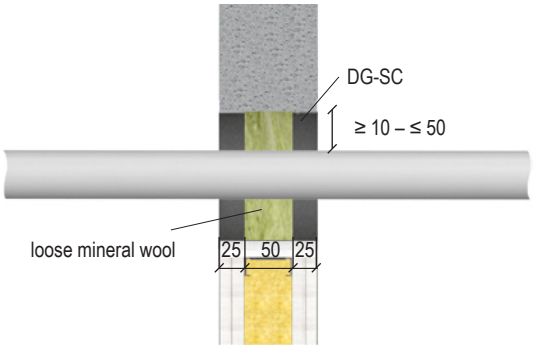
Products

DG-SC
Cartridge, 310 ml – Art. no. 01157100

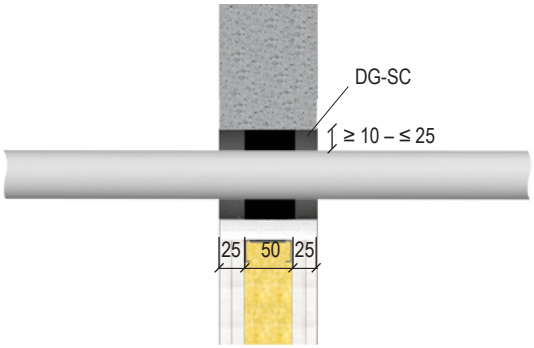
Mineral wool
Bag, 10 kg – Art. no. 01183000

Design Variants

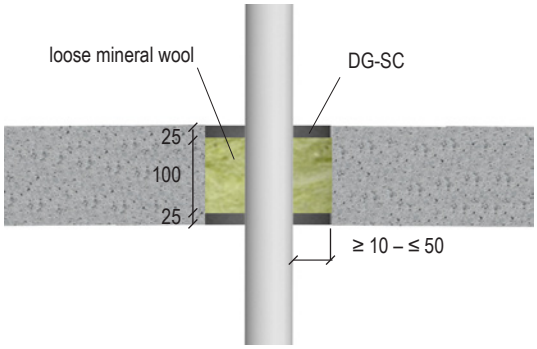
Plasterboard wall and solid wall – backfilling with mineral wool



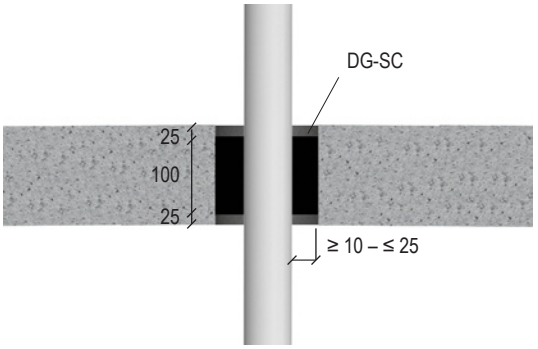
Plasterboard wall and solid wall – without backfilling



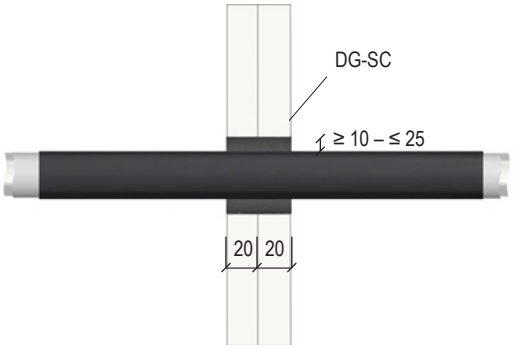
Solid floor – backfilling with mineral wool



Solid floor – without backfilling



Shaft wall



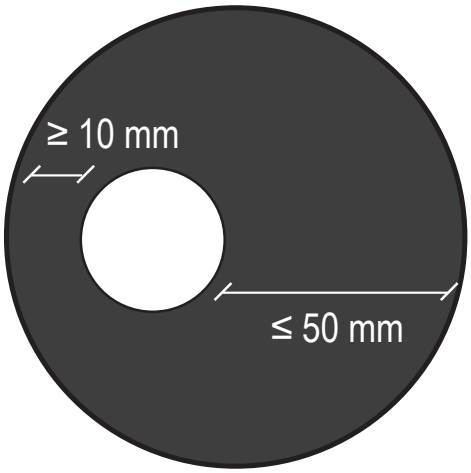
All specifications in mm

System DG-SC

Overview

	Plasterboard wall / solid wall	Floor	Shaft wall
Thickness of building element	≥ 100	≥ 150	≥ 40
Thickness of penetration seal	≥ 100	≥ 150	≥ 40
Width of annular gap without backfilling	≥ 10 – ≤ 25	≥ 10 – ≤ 25	≥ 10 – ≤ 25
Width of annular gap with backfilling	≥ 10 – ≤ 50	≥ 10 – ≤ 50	–
Depth of optional backfilling	≥ 50	≥ 100	–
Filling depth of annular gap per side	≥ 25	≥ 25	≥ 20
Spacing distance between single penetrations	≥ 100	≥ 100	≥ 100
Spacing distance between non-insulated steel pipes Ø ≤ 48.3 mm	≥ 100	≥ 0	≥ 100
Spacing distance between multilayer pipes KE KELIT KELOX KM 110 (Ø ≤ 32 mm in line)	–	–	≥ 0
Distance to other openings or installations	≥ 100	≥ 100	≥ 100
Distance of initial supports in front of seal	≤ 500	≤ 500	≤ 600

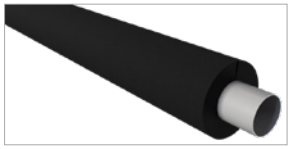
*All specifications in mm



Flexible size of annular gap
≥ 10 – ≤ 50 mm

With System DG-SC you can solve practically any kind of installation situation – even in the case of non-central penetrations.
With an annular gap of ≥ 10 – ≤ 50 mm it is possible to seal anything.

System DG-SC



Applicable with any kind of FEF insulation

All commercially available types of FEF insulation can be used.
They only need to conform to the EN 14304 standard and meet class B-s3,d0 (EN 13501-1) for reaction to fire.

Cables / Cable Bundles / Electrical Installation Conduits / Coaxial Cables

- a unique possibility to seal cable bundles Ø ≤ 180 mm and coaxial cables with a fire resistance period of minutes (EI 120)

Type	Max. diameter [mm]	Details/ measure	Backfilling	Fire resistance class	
				Wall	Floor
Cables, cable bundles					
Cables	≤ 21	–	+	EI 120	EI 120
	≤ 50	–	+	–	EI 60
	≤ 47	type E-YCWY 4x95RM	+	EI 90	–
	≤ 61	type H07RN-F 4G95	+	EI 90	–
Cable bundles	≤ 100, cables ≤ 21	–	+	EI 120	–
	≤ 150, cables ≤ 21	–	+	–	EI 120
	≤ 180, cables ≤ 21	plasterboard wall	+	EI 90	–
	≤ 180, cables ≤ 21	solid wall	+	EI 120	–
Electrical installation conduits (EIC)					
EIC single	≤ 32, with/without cables ≤ 21	–	+	EI 120-U/U	EI 120-U/U
EIC bundles	≤ 90, EIC ≤ 32 with/without cables ≤ 21	–	+	–	EI 120-U/U
	≤ 100, EIC ≤ 32 with/without cables ≤ 21	–	+	EI 60-U/U	–
Coaxial cables					
RFS CELLFLEX LCF	≤ 50.3	–	+	EI 120-U/C	EI 120-U/C
RFS RADIAFLEX RLK	≤ 48.2	–	+	EI 120-U/C	EI 120-U/C
CommScope HELIAX AVA	≤ 51.1	–	+	EI 120-U/C	EI 120-U/C

System DG-SC

Combustible pipes

- the largest classified scope of performance for combustible pipes
- plastic pipes with a diameter of up to 75 mm open/open classified up to EI 120-U/U

Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Backfilling	Fire resistance class	
				Wall	Floor
Plastic pipes with/without 5 mm PE soundproofing tube					
PVC-U	≤ 50	1.8	-	EI 120-U/U	EI 120-U/U
	≤ 75	1.8	-	EI 90-U/U	EI 120-U/U
	≤ 110	1.8–8.1	+ / -	EI 120-U/C	EI 120-U/C
PE, PE-X, ABS, SAN + PVC	≤ 50	1.8	-	EI 120-U/U	EI 120-U/U
	≤ 75	1.8–1.9	-	EI 90-U/U	–
	≤ 110	1.8–10	+ / -	EI 120-U/C	EI 120-U/C
PP-H	≤ 50	1.8	-	EI 120-U/U	EI 120-U/U
	≤ 75	1.8–1.9	-	EI 90-U/U	–
	≤ 110	1.8–10	+ / -	EI 120-U/C	EI 120-U/C
FRIATEC Friaphon	52–110	2.8–5.3	+ / -	EI 120-U/C	EI 120-U/C
Pipelife MASTER 3	50	2.0	-	EI 120-U/U	–
	50–110	1.8–3.0	+ / -	EI 120-U/C	EI 120-U/C
POLOPLAST POLO-KAL 3S	75	3.8	-	EI 60-U/U	–
	75–110	3.8–4.8	+ / -	EI 120-U/C	EI 120-U/C
POLOPLAST POLO-KAL NG	50	2.0	-	EI 120-U/U	–
	50–110	2.0–3.4	+ / -	–	EI 120-U/C
POLOPLAST POLO-KAL XS	50	2.0	-	EI 120-U/U	–
	50–110	2.0–3.4	+ / -	–	EI 120-U/C
Geberit Silent-Pro	50	3.2	-	EI 120-U/U	–
	50–110	3.0–4.5	+ / -	EI 90-U/C	EI 120-U/C
Geberit Silent-PP	50	2.0	-	EI 120-U/U	–
	50–110	2.0–3.6	+ / -	–	EI 120-U/C
Geberit Silent dB20	56	3.2	-	EI 120-U/U	–
	56–110	2.0–3.6	+ / -	–	EI 120-U/C
REHAU RAUPIANO PLUS	50	1.8	-	EI 120-U/U	–
	50–110	1.8–2.7	+ / -	–	EI 120-U/C
CONEL DRAIN	50	1.8	-	EI 120-U/U	–
Ostendorf Skolan SAFE dB	58	4.0	-	EI 120-U/U	–
	58–110	4.0–5.3	+ / -	–	EI 120-U/C
GF Silenta Premium	58	5.3	-	EI 120-U/U	–
Valsir Triplus	50	1.9	-	EI 120-U/U	–
	50–110	1.8–3.4	+ / -	–	EI 120-U/C
Wavin AS+	50	3.0	-	EI 90-U/U	–
Wavin SiTech+	50	2.1	-	EI 90-U/U	–
	32–110	1.8–3.4	+ / -	–	EI 120-U/C

System DG-SC

Multilayer Pipes

Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Backfilling	Fire resistance class	
				Wall	Floor
Multilayer pipes with/without 5 mm PE soundproofing tube					
Geberit Mepla	16	2.25	+	EI 120-U/C	EI 120-U/C
	16	2.25	-	EI 90-U/C	EI 120-U/C
	≤ 50	2.25–4.0	+	EI 90-U/C	EI 120-U/C
	≤ 50	2.25–4.7	-	–	EI 120-U/C
	≤ 75	2.25–4.7	+	EI 30-U/C	EI 120-U/C
KE KELIT KELOX KM 110	16	2.0	+	EI 120-U/C	EI 120-U/C
	16	2.0	-	EI 90-U/C	–
	≤ 75	2.0–7.5	+	EI 90-U/C	EI 120-U/C
Uponor Uni Pipe Plus	≤ 32	2.0–3.0	+	EI 120-U/C	EI 120-U/C
	≤ 32	2.0–3.0	-	EI 90-U/C	–
	32	3.0	-	EI 120-U/C	–
REHAU RAUTITAN stabil	≤ 40	2.0–6.0	+	EI 120-U/C	EI 120-U/C
	≤ 40	2.0–6.0	-	EI 90-U/C	–
Fränkische Alpex F50	≤ 32	2.0–3.0	+	EI 120-U/C	EI 120-U/C
FRÄNKISCHE alpex L	40	3.5	+ / -	EI 120-U/C	EI 120-U/C
	≤ 40	2.6–3.5	-	EI 90-U/C	–
	≤ 75	3.5–5.0	+	EI 30-U/C	EI 120-U/C
	≤ 75	3.5–5.0	-	–	EI 120-U/C

Installation in shaft walls

- for the first time classified multilayer pipes with FEF insulation in shaft walls
- possibility to install an unlimited number of pipes in line at zero distance

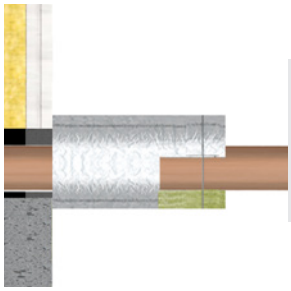
Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Backfilling	Fire resistance class
Plastic pipes without soundproofing tube				
POLOPLAST POLO-KAL NG POLOPLAST POLO-KAL XS Geberit Silent-PP	50	2.0	-	EI 90-U/U
Plastic pipes with 19 mm FEF insulation				
POLOPLAST POLO-KAL NG POLOPLAST POLO-KAL XS Geberit Silent-PP	50	2.0	-	EI 90-U/U
Multilayer pipes with/without 5 mm PE soundproofing tube				
Geberit Mepla	25–32	3.0	-	EI 90-U/C
REHAU RAUTITAN stabil	25–32	3.7–4.7	-	EI 90-U/C
KE KELIT KELOX KM 110	20–32	2.5–3.0	-	EI 90-U/C
Multilayer pipes with 19 mm FEF insulation				
Geberit Mepla	25–32	3.0	-	EI 90-U/C
REHAU RAUTITAN stabil	25–32	3.7–4.7	-	EI 90-U/C
KE KELIT KELOX KM 110	25–32	2.5–3.0	-	EI 90-U/C

System DG-SC

Non-combustible pipes

- Possibility to install non-insulated steel pipes in floors at zero distance – an essential advantage for solving complex situations on the construction site

Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Backfilling	Fire resistance class	
				Wall	Floor
Non-combustible pipes without insulation					
Copper, steel, stainless steel, cast iron	≤ 15.0	1.0	+	–	EI 120-C/U*
	≤ 18.0				EI 90-C/U*
	≤ 22.0				EI 60-C/U*
Steel, stainless steel, cast iron	26.9	2.0	+	EI 90-C/U	–
	≤ 42.4	2.3–14.2	+ / -	–	EI 120-C/U
	≤ 48.3	2.1–14.2	+ / -		EI 120-C/U*
	≤ 48.3	2.1–14.2	+		EI 90-C/U**
* at a floor thickness of ≥ 200 mm ** zero distance between pipes					
Non-combustible pipes with lamella mat insulation (LS/CS)					
Copper, steel, stainless steel, cast iron	≤ 54	1.0–14.2	≥ 1000 × 30–60	+ / -	EI 120-C/U	EI 120-C/U
	≤ 76	1.0–14.2	≥ 1500 × 30–60	-	–	EI 120-C/U
	≤ 88.9	1.5–14.2	≥ 1500 × 30–60	+	EI 90-C/U	EI 90-C/U
	≤ 88.9	1.0–14.2	≥ 1500 × 60	-	–	EI 120-C/U
Steel, stainless steel, cast iron	≤ 54	1.0–14.2	≥ 1000 × 30–60	+ / -	EI 120-C/U	EI 120-C/U
	≤ 114	1.0–14.2	≥ 1500 × 30–60	+ / -	EI 120-C/U	EI 120-C/U



The LI variant (local interrupted section insulation) is a simple solution for complex installation situations. Especially when the remaining annular gap makes it impossible for an insulation to pass through the penetration‘s cross-section.

Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Insulation length × thickness [mm]	Back-filling	Fire resistance class	
					Wall	Floor
Non-combustible pipes with lamella mat insulation (LI/CI)						
Copper, steel, stainless steel, cast iron	≤ 54.0	1.5–14.2	2× ≥ 500 × 30	-	EI 120-C/U	EI 120-C/U
Steel, stainless steel, cast iron	≤ 88.9	1.5–14.2	2× ≥ 500 × 30–60	-	EI 120-C/U	EI 120-C/U
	≤ 114.0	1.5–14.2	2× ≥ 500 × 60	-	EI 90-C/U	EI 120-C/U
	≤ 114.0	1.5–14.2	2× ≥ 500 × 30–60	-	–	EI 120-C/U

System DG-SC

Type	Pipe diameter [mm]	Pipe wall thickness [mm]	Insulation length × thickness [mm]	Backfilling	Fire resistance class	
					Wall	Floor
Non-combustible pipes with pipe shell insulation (CS)						
Copper, steel, stainless steel, cast iron	≤ 54.0	1.0–14.2	20–30	+ / -	–	EI 120-C/U
	≤ 88.9	1.0–14.2	30	+	EI 120-C/U	EI 120-C/U
	≤ 88.9	1.0–14.2	30	-	EI 90-C/U	EI 120-C/U
Steel, stainless steel, cast iron	≤ 54.0	1.0–14.2	20–30	+	EI 120-C/U	EI 120-C/U
	≤ 54.0	1.0–14.2	20–30	-	EI 90-C/U	EI 120-C/U
	≤ 88.9	1.0–14.2	30–40	+	EI 120-C/U	EI 120-C/U
	≤ 88.9	1.0–14.2	30–40	-	EI 90-C/U	EI 120-C/U
	≤ 114.0	1.0–14.2	40	+	EI 120-C/U	EI 120-C/U
	≤ 114.0	1.0–14.2	40	-	EI 90-C/U	EI 120-C/U
Non-combustible pipes with FEF insulation (LS/CS)						
Copper, steel, stainless steel, cast iron	≤ 28.0	1.0–14.2	≥ 1250 × 19–25	+ / -	EI 120-C/U	EI 120-C/U
	≤ 42.0	1.0–14.2	≥ 1250 × 25	+ / -	EI 120-C/U	EI 120-C/U
	≤ 42.0	1.0–14.2	≥ 1250 × 19–38	+	EI 120-C/U	EI 120-C/U
	≤ 54.0	1.0–14.2	≥ 1250 × 38	-	EI 60-C/U	EI 120-C/U
	≤ 54.0	1.0–14.2	≥ 1250 × 38	+	EI 120-C/U	EI 120-C/U
	≤ 54.0	1.0–14.2	≥ 1250 × 19–38	+ / -	–	EI 120-C/U

HVAC Split Line Combinations

Services	Pipe diameter [mm]	Pipe wall thickness [mm]	Type of insulation	Insulation length × thickness [mm]	Backfilling	Fire resistance class	
						Wall	Floor
• Copper pipes with 9 mm PEF insulation	≤ 2 × ≤ 18	1.0–14.2	Lamella mat LI/CI	2 × 250 × 30	+	EI 120	–
• PVC-U-/PVC-C pipe	≤ 1 × ≤ 25	1.5					
• Cables	≤ 2 × ≤ 14	–					
• Copper pipes with 9 mm PEF insulation	≤ 2 × ≤ 22	1.0–14.2	–	–	+	EI 90	EI 120
• PVC-U-/PVC-C pipe	≤ 1 × ≤ 25	1.5					
• Cables	≤ 2 × ≤ 14	–					
• Copper pipes with 9 mm PEF insulation	≤ 2 × ≤ 22	1.0–14.2	–	–	+	EI 120-C/U	EI 120-C/U