Henkel QUALITY FOR PROFESSIONALS

Tangit Fire Protection

INSTRUCTIONS FOR INSTALLATION

INSULATION FOR

- **R 90 Pipelines**
- **S 90 Electrical cabling**
- **F 90 Component clearances**

These instructions for the installation of Tangit fire protective systems is based on the general building regulations test certificates and approvals, and good practice. All information is subject to change. No guarantees are given for constructions varying from those given herein.

06/03

The Tangit Fire Protection Concept

INHALTSÜBERSICHT

SYSTEM SELECTION NOTE:

1) All standardized and approved systems on the market using the materials listed here can be used.
2) Pipe systems with special material combinations that cannot be classified under 1)

The Tangit Fire Protection Concept

SCOPE OF APPLICATION

Fire Protection

The technical suitability of the Tangit fire protection concept has been proved in operational tests.

Non-combustible pipes made of steel and copper, with a diameter of up to 160 mm	
General building regulations test certificate (ABP)	P - 3476 / 1640 - MPA BS
Multiply laminated pipes PE-AL-PE with a diameter of up to 63 mm	
General building regulations test certificate (ABP)	P - 3475 / 1630 - MPA BS
Combustible pipes up to d=78 mm	
General building regulations approval (ABZ)	Z - 19.17 - 1401
Combustible pipes of d = 90 to 160 mm	
General building regulations approval (ABZ)	Z - 19.17 - 1400
Seals for electricity cables	
General building regulations approval (ABZ)	Z - 19.15 - 1367
Component joints	
General building regulations approval (ABP)	P - 3333 / 0210 - MPA BS

All existing test certificates, approvals, invitations to tender, and the installation instructions are accessible at **www.Henkel-Installation.de**

Sound proofing

Constructional sound proofing has to comply with DIN 4109/VDI guideline 4100 or DIN 4109 – 10(E). Sound proofing tests carried out at the Fraunhofer Institute in Stuttgart have shown that Tangit FP-500 Fire Protection Foam with/without Tangit FP-625/635/650 Fire Protection Tape, or with Tangit FP-709/711/713/716 Fire Protection Collar, meets the requirements of structure-borne noise insulation between installation pipes and structural components if the installation regulations are followed. If comfort sound proofing to ≤24 dB(A) is required, an acoustic expert should be called in.

System measurements have shown that e.g.

... **for drain pipes constructed from SML cast iron pipes**
the gap width with Tangit FP-500 = 30 mm, measured at the back of the underground floor, with a volume flow of 2.0 l/s, $L_{AF,\ \alpha}$= 24 dB(A)

... **for metal drinking water pipes**
sound-proofing requirements are met if group-I fittings are used

Heat insulation

Heat insulation for installation pipes must be complied with.

- For **hot-working pipes**, HeizAnVI requires at least 50% insulation strength near wall and ceiling ducts for λ = 0,035 W/m •K. Tangit FP-500 Fire Protection Foam affords λ = 0,040 W/m •K
- For **hot-working pipes**, HeizAnVI requires at least 100% insulation strength for adjacent insulation for λ = 0,035 W/m •K

- For **cold-working pipes**, according to DIN 1988 – 2 with an insulation at least 13 mm thick, if installed next to hot-working pipes in ducts.
- **Condensate water** protection for cold-working pipes according to DIN 1988 – 2 is ensured by the closed-cell Tangit FP-500 Fire Protection Foam (coolant pipes require special construction – please contact supplier).

The Tangit Fire Protection Concept

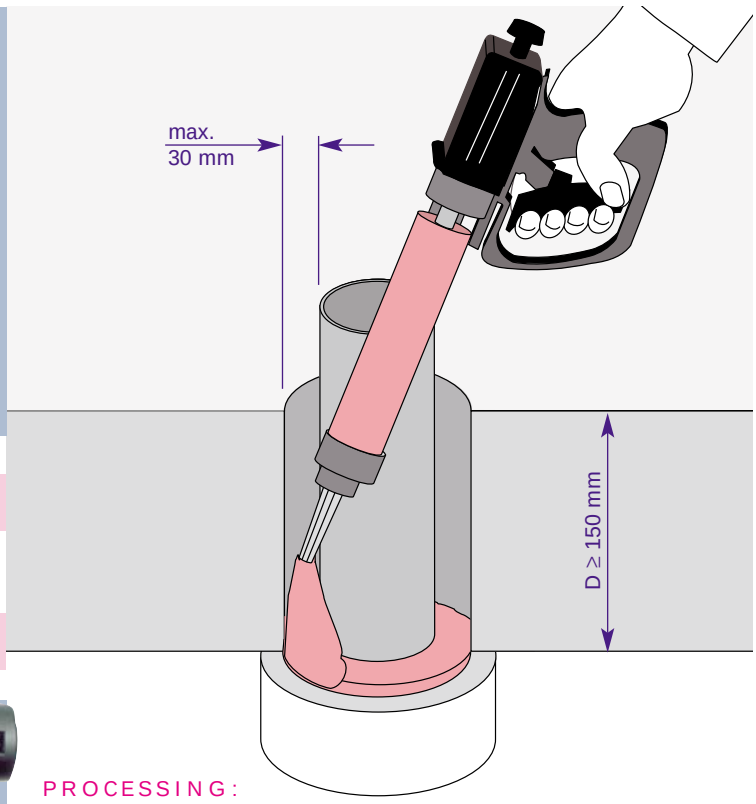
Tangit FP 500
Fire Protection Foam

For component joints up to 30 mm

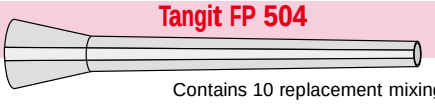
Special Product Properties

- Yields approx. 3.2 l of foam (inside gaps)
- Does not flow during foaming
- Can be cut after 6 minutes
- Cures independent of humidity
- No negative effect on stainless steel pipe corrosion
- Processing temperature +5 to +30°C; optimum temperature +15 to +25°C
- Minimum cartridge temperature +5°C
- For processing temperatures <10°C storage of cartridge in a warm place prior to processing is recommended

Package size: cartridge with 220 ml



Tangit FP 504



Contains 10 replacement mixing tubes and 10 extension pieces

Tangit FP 520
Two-component cartridge gun

A solid special gun, allowing the ejection of the two Tangit FP-500 Fire Protection Foam components even at 5 to 10°C.

This gun also allows the ejection of conventional single-component joint fillers.

PROCESSING:
Surfaces must be dry, firm and free of dust, grease, or oil. Unscrew cap from cartridge and adjust mixing tube. Insert cartridge into Tangit FP-520 two-component cartridge gun and eject uniformly. Foam hardens without the addition of water and independent of ambient humidity. Foam can be cut after 6 minutes. Cartridge can be closed with screw cap after the outlet has been cleaned. Replacement mixing tubes are available as Tangit FP 504 Mixing Tubes.

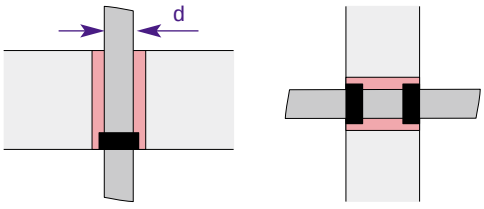
Tangit FP 625/635
Fire Protection Tape

For combustible tubes up to d = 78 mm

d [mm]	Type	Number of layers
≤ 40	**FP 625**	1 x
50 - 56	**FP 625**	2 x
63	**FP 635**	3 x
75 - 78	**FP 635**	4 x

Special Product Properties

- Easy to use – self-adhesive
- Intumescent - expands when exposed to heat – in case of fire shuts pipes through pressure



Package size:
- 1 box of Tangit FP 625 contains 2 tapes of dimensions 2000 x 30 x 2.5 mm
- 1 box of Tangit FP 635 contains 2 tapes of dimensions 2000 x 40 x 2.5 mm

PROCESSING:
the fire protection tape can be moved along the tube if the protection film is not removed from the first layer.

FP 500 fire protection foam | FP 625/ 635 fire protection tape | FP 709/711/713/716 fire protection collar | FP 801 fire protection paint | continued insulation (non-combustible) RS 800 Rockwool | Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801 | Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

Tangit FP 709/711/713/716
Fire Protection Collar

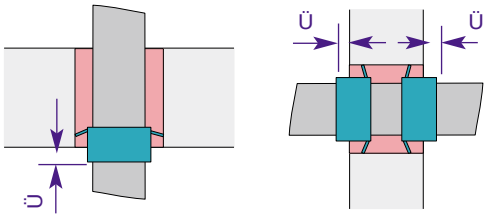
For combustible pipes up to d = 90 to 160 mm

Type	Pipe dimensions d [mm]
FP 709	90
FP 711	110
FP 713	135
FP 716	160

Special product properties

- Easy installation – no plugging
- The sealing strip laminated to the steel jacket expands when heated, and in case of a fire it shuts off thermoplastic pipes.

Package size: 1 carton of Tangit FP 709/711/713/716 contains 1 fire protection collar



d [mm]	Ü [mm]
90	30
110	30
135	30
160	30

Tangit FP 801
Fire Protection Paint

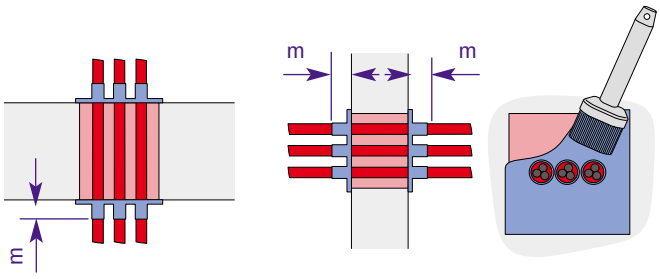
For cable insulation

Special product properties

- Intumescent fire protection paint

Package size: 1 carton of Tangit FP 801 contains two 1-kg cans

- The surface of the foam must be dry and clean
- Coat the surface of the foam with a soft brush in several layers. Minimum thickness should be 1 mm
- m ≥ 150mm coated length along the cable



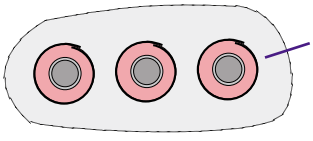
m ≥ 150 mm

ø 20 mm maximum diameter
60% maximum grouping

maximum opening: ☐ 200 x 200 mm
○ 250 mm

NOTE: cables can be installed in trunk groups

NOTE ON THE USE OF JACKET TUBES AS SHUTTERING MATERIAL: shuttering material can be made from galvanized sheet steel rolled to a thickness of 0,6 mm. Jacket tubes can be removed by inserting a thin teflon film or by coating them with teflon spray as a parting layer prior to foaming. After foam curing, the jacket tube must be removed and the clearance filled with concrete/mortar unless it is covered with non-combustible continued insulation at the surfaces.



mortar/concrete
(for detailed installation instructions see pp. 10 and 12)

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

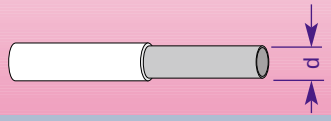
NON-COMBUSTIBLE INSTALLATION PIPES

Pipes of type RT 1

RT 1 = Non-combustible installation pipes up to d = 160 mm

- Copper pipes (up to d = 108 mm)
- Stainless steel pipes
- Threaded pipes
- Fire tubes
- Cast iron/SML-pipes
- Galvanized steel drain pipes

Pipes of type RT 2



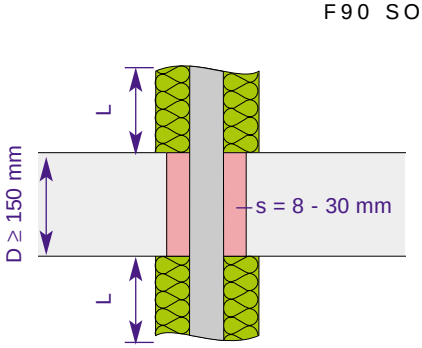
RT 2 = Non-combustible pipes with a plastic coating up to d = 54 mm

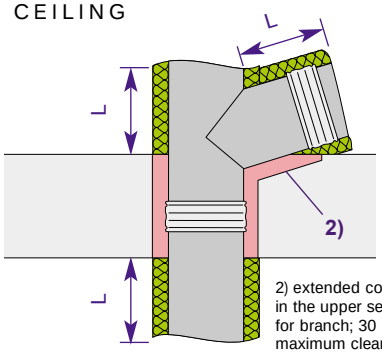
- Copper + coating
- Stainless steel/C-steel + **mapress** coating

Please Note:
The plastic coating must be removed from the feedthrough section and from the continued non-combustible insulation (minimum insulation length.)

R90 tubular feedthroughs of Pipes of types RT 1-2 for non-combustible installation pipes

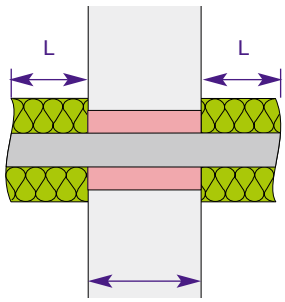
F90 SOLID CEILING



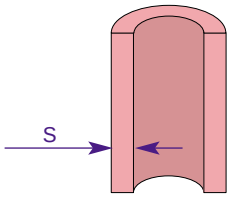


2) extended core drilling in the upper section for branch; 30 mm maximum clearance

F90 SOLID WALL



Design in accordance with the general building regulations approval P-3476/1640-MPA BS

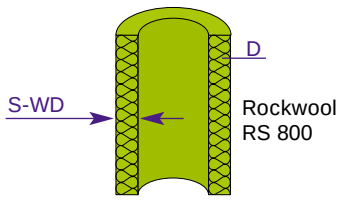


RECOMMENDED CLEARANCE:

- **Pipe diameter up to 22 mm = 8 – 20 mm clearance**
- **Pipe diameter < 22 mm = 8 – 30 mm clearance**
- **Regulations: clearance s + 10 mm = minimum insulation thickness**

PROCESSING NOTES: A sheath may be used in larger openings as permanent shuttering (.6 mm galvanized sheet steel), and subsequently the opening can be closed with concrete/mortar. The continued non-combustible insulation must cover the sheath ends (see installation notes p. 4 below.)

Comments / Conditions



Continued insulation
Non-combustible
(see table)
melting point > 1000°C

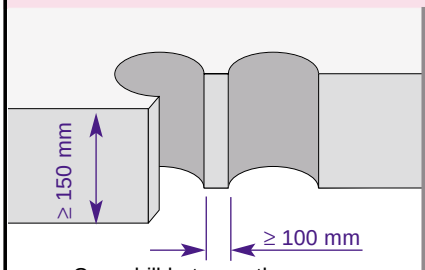
Pipe material	dimensions	insulation thickness S-WD	Minimum Insulation length L (on both sides)
Copper, Steel, cast iron	≤ 22,0 mm	≥ 30 mm	≥ 450 mm
Copper	> 22,0 - 54,0 mm	≥ 50 mm	≥ 500 mm
Copper	> 54,0 - 108,0 mm	≥ 100 mm	≥ 700 mm
Steel, cast iron	> 22,0 - 108,0 mm	≥ 50 mm	≥ 500 mm
Steel, cast iron	> 108,0 - 114,3 mm	≥ 50 mm	≥ 600 mm
Steel, cast iron	> 114,3 - 160,0 mm	≥ 50 mm	≥ 800 mm

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

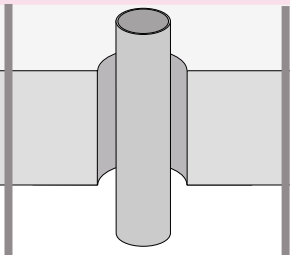
The Tangit Fire Protection Concept

INSTALLATION / INSULATION THICKNESS / CONSUMPTION

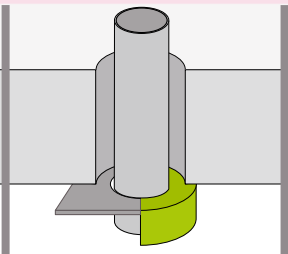
Installation Steps



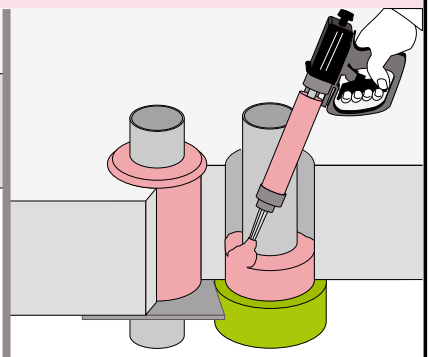
• Core-drill between the insulation surfaces
Distance ≥ 100 mm



Center the installation pipe in the bore, with a tolerance of ± 5 mm. [1]



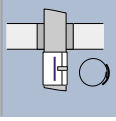
Close and slightly support one end of the boring, using e.g. cardboard or the continued insulation.



- Fill the boring with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the non-combustible continued insulation, e.g. rock wool RS 800.

[1] The installation must ensure that the feedthrough is under no major constraining forces (except expansion.)

NOTE: measures have to be taken with all metal pipes of types RT 1 and RT 2 to absorb their expansion.

Pipe type	Pipe material	Up to 4 mm expansion near the leadthrough	> 4 mm expansion near the leadthrough
RT 1 - 2	Copper, stainless steel, threaded pipes, heating tube	No measures required	 Wrap a PE-film of thickness ≤ 0,2 mm around the pipe prior to foaming. Avoid any wrinkles. Fix film with adhesive tape and move into place.

2) Not necessary for waste water pipes – expansion is absorbed by the junction

Consumption at 150 mm component thickness

Pipe material **RT 1 - 2**				Sista FP 500 s → Clearance volume [liters] at clearance s = [mm], 3)					Minimum insulation thickness [mm]	
Copper DIN EN 1057 d [mm]	stainless steel DIN 17455/57 d [mm]	Threaded pipe DIN 2428 d [mm)]	**RT 1** drain pipes d [mm)]	10	15	20	25	30	Cold-working pipelines acc. to DIN 1988, 2), 3), 6) at λ =0,04	Hot-working pipelines acc. to HeizAnlV, wall- and ceiling ducts 3), 6) 50% at λ =0,04
		10,2		0,10	0,10	0,18	0,29	0,42	13	13
12	12			0,10	0,19	0,30	0,43	0,59	13	13
		13,5		0,11	0,20	0,31	0,45	0,61	13	13
15	15			0,12	0,21	0,33	0,47	0,63	13	13
		17,2		0,13	0,22	0,35	0,49	0,66	13	13
18	18			0,13	0,23	0,35	0,50	0,67	13	13
		21,3		0,15	0,25	0,38	0,54	0,72	13	13
22	22			0,15	0,26	0,39	0,55	0,73	13	13
		26,9		0,17	0,29	0,44	0,61	0,80	13	13
28	28			0,18	0,30	0,45	0,62	0,82	13	19
		33,7		0,21	0,34	0,50	0,69	0,90	13	18
35	35			0,21	0,35	0,51	0,70	0,91	13	18
42	42			0,24	0,40	0,58	0,78	1,01	13	25
		42,4		0,25	0,40	0,58	0,79	1,02	13	18
		48,3	48,0	0,27	0,44	0,64	0,86	1,10	13	24
54	54		53,0	0,30	0,48	0,69	0,93	1,18	13	30
		60,3	58,0	0,33	0,53	0,75	1,00	1,27	13	30
64	64			0,35	0,55	0,79	1,04	1,32	13	30 4)
			73,0	0,40	0,63	0,89	1,17	1,48	13	30 4)
76,1	76,1	76,1	78,0	0,41	0,64	0,90	1,19	1,49	13	30 4)
88,9	88,9	88,9	89,0	0,47	0,73	1,02	1,34	1,68	13	30 4)
108	108		102 - 110	0,56	0,86	1,20	1,56	1,95	13	30 4)
		114,3		0,59	0,91	1,26	1,64	2,03	13	30 4)
		139,7	133 - 135	0,71	1,09	1,50	1,93	2,39	13	30 4)
		168,3	159 - 160	0,84	1,29	1,77	2,27	2,80	13	30 4)

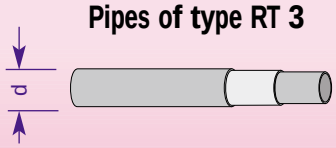
2) For installation in ducts adjacent to hot-working pipelines
3) Insulation of Tangit FP 500 Fire Protection Foam, λ= 0,04 W/m •K
4) No compliance with the minimum insulation thickness required by HeizAnlV
6) Not applicable for drain pipes

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

MULTIPLY LAMINATED PIPES

Pipes of type RT 3

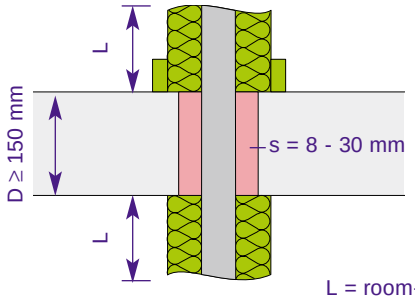


RT 3 = metal-plastic laminate pipes up to d = 32 mm, a maximum pipe wall thickness 3.0 mm, and an aluminium base course thickness of 0.16 to 1.5 mm
RT 3 = metal-plastic laminate pipes of d > 32 mm, and up to 63 mm, a maximum pipe wall thickness 4.5 mm, and an aluminium base course thickness of 0.16 to 1.5 mm, covering the following systems:

- **Fränkische Rohrwerke** - System Alpex-Duo
- **FRIATEC** - System FRIATHERM multi
- **GEBERIT** - System Mepla
- **UPONOR** - System Unipipe
- **Wavin** - System Tigris
- **Wirsbo-VELTA** rapex multi formstabil
- **JRG Gunzenhauser** - System JRG Sanipex MT
- **Viega 'sanfix Fosta' Rohr**
- other metal-plastic laminate pipes compliant with the conditions mentioned above, or with the „substitute specifications" of DIBt

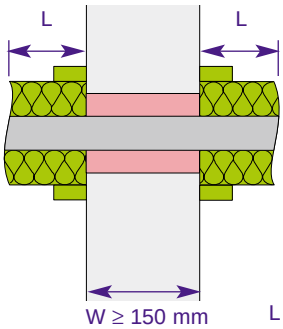
R90 tubular feedthroughs for multiply laminated pipes of type RT 3

F90 SOLID CEILING



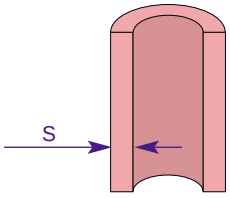
L = room-high

F90 SOLID WALL



L = continuous

Design acc. to the general building regulations approval P-3475/1630-MPA BS

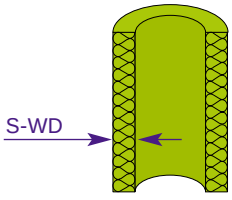


RECOMMENDED CLEARANCES:

- **Pipe diameter up to 40 mm = clearance 8 – 20 mm**
- **Pipe diameter 50 to 63 mm = clearance 8 – 30 mm (30 mm for hot-working pipelines)**
- **Regulations: clearance s + 10 mm = minimum thickness of continued insulation**

PROCESSING NOTES: see installation instructions on page 6.

Notes / conditions

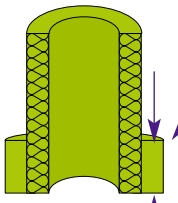


Rockwool
RS 800

Non-combustible continued insulation, melting point > 1000°C

- Minimum thickness 10 mm larger than clearance FP 500
- Minimum insulation thickness ≥ 30 mm
- Minimum insulation length = room-high/continuous

IMPORTANT NOTE: for aluminium base courses of thickness ≤ 0.15 mm the requirements of PE-X pipes = RT 4a apply



Use Tangit FP 801 to laminate the rock wool strip to the wall/ceiling

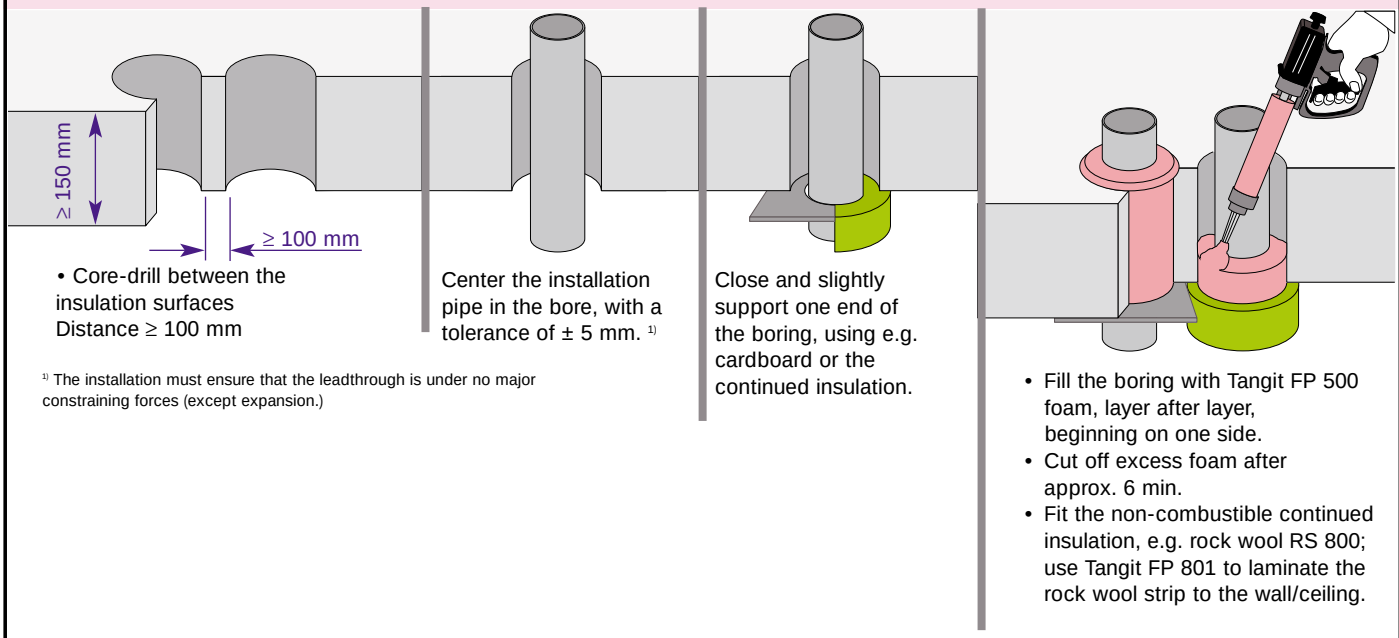
z.B. Rockwool RS 800
height 50 mm
thickness 20 mm

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

INSTALLATION / INSULATION THICKNESS / CONSUMPTION

Installation Steps



• Core-drill between the insulation surfaces
Distance ≥ 100 mm

Center the installation pipe in the bore, with a tolerance of ± 5 mm. [1]

Close and slightly support one end of the boring, using e.g. cardboard or the continued insulation.

- Fill the boring with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the non-combustible continued insulation, e.g. rock wool RS 800; use Tangit FP 801 to laminate the rock wool strip to the wall/ceiling.

[1] The installation must ensure that the leadthrough is under no major constraining forces (except expansion.)

Consumption at 150 mm component thickness

Pipe material **RT 3**	Tangit FP 500 s — Clearance volume [liters] at clearance s = [mm], 3)					Minimum insulation thicknesses [mm]	
Multiply laminated pipe d [mm] 1)	10	15	20	25	30	Cold-working pipelines with minimum insulation thickness at λ =0,04	Hot-working pipelines acc. to HeizAnlV, wall- and ceiling ducts 3) 50% at λ =0,04
12	0,10	0,19	0,30	0,43	0,59	30	30
14	0,11	0,20	0,32	0,45	0,62	30	30
16	0,12	0,21	0,33	0,48	0,65	30	30
18	0,13	0,23	0,35	0,50	0,67	30	30
20	0,14	0,24	0,37	0,53	0,70	30	30
25	0,16	0,28	0,42	0,58	0,77	30	30
26	0,17	0,29	0,43	0,60	0,79	30	30
32	0,20	0,33	0,49	0,67	0,87	30	30
40	0,24	0,38	0,56	0,76	0,98	30	30
50	0,28	0,45	0,65	0,88	1,13	30	30
63	0,34	0,55	0,78	1,03	1,31	30	30

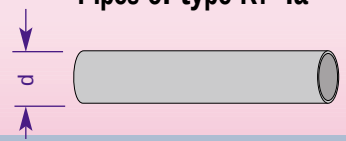
3))Insulation of Tangit FP 500 Fire Protection Foam, λ = 0.04 W/m •K

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

THERMOPLASTIC INSTALLATION PIPES UP TO d = 78 mm

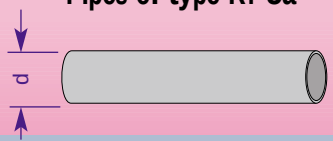
Pipes of type RT 4a



RT 4a = thermoplastic installation pipes up to d = 78 mm with a pipe wall thickness of 1.8 to 6.9 mm; for supply and drain pipelines, covering the following materials/systems

- PB, PE, PE-HD, LDPE, PE-X[3]
- PP (for supply pipelines)[3]
- ABS/ASA, ABS/ASA/PVC[3]
- FRIATEC - FRIAPHON[4]
- GEBERIT db20 and PE-HD[4]
- UPONOR - Skolan[4]
- Wavin Wavin AS[4]
- WIRSBO-Velta rapex multi flexibel [4]
- PP/PE-X laminated pipes with an aluminium base course thickness of ≤0.15 mm

Pipes of type RT 5a



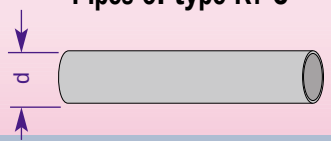
RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 5.6 mm; for supply and drain pipelines, covering the following materials/systems

- PVC-U, PVC-HI, PVC-C[3]

RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 6.9 mm; for drain pipes, covering the following materials/systems

- PP (for drain pipes)[3]

Pipes of type RT 6



RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 4.4 to 10.3 mm; for supply pipelines, covering the following materials/systems

- PP fusiotherm fiber reinforced pipes[4]

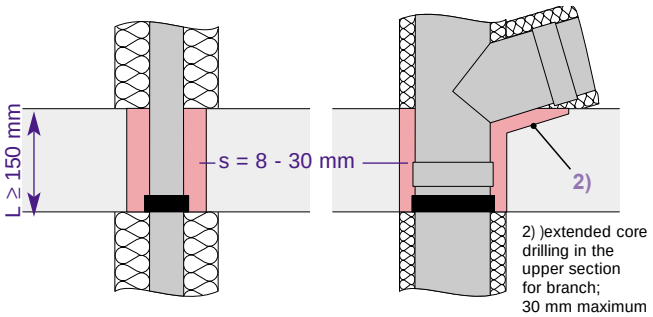
RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 2.9 to 5.8 mm; for supply pipelines, covering the following materials/systems

- PB fiber reinforced pipes[4]
- Instaflex-Stabiverbund Pipes[4]

3) All pipe systems on the market can be used if they are made of the listed materials.
4) Pipe systems with special material combinations not classified under 3)

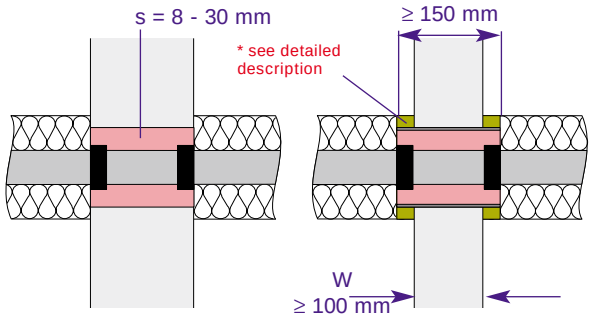
R90 tubular feedthroughs for pipes of types RT 4a, RT 5a, and RT 6 with fire protection tapes

F90 SOLID CEILING



2))extended core drilling in the upper section for branch; 30 mm maximum clearance

F90 SOLID WALL



Design in accordance with the general building regulations approval by DIBt Berlin Z-19.17-1401

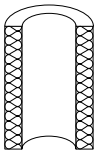
RECOMMENDED CLEARANCES:

- **Pipe diameter up to 40 mm = clearance 8 – 20 mm**
- **Pipe diameter > 40 mm = clearance 8 – 30 mm (30 mm for hot-working pipelines)**
- **A maximum clearance of 30 mm must not be exceeded at any point of the installation**

PROCESSING NOTES: no heat-conducting jacket tubes must be used as permanent shuttering in combination with combustible continued insulation. The sheath must be removed after foaming (cf. installation notes on page 4 below.) Sheaths can be used with walls of up to 150 mm thickness if they are covered against heat dissipation with a strip of mineral fiber.

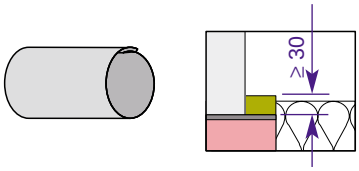
IMPORTANT NOTE:
the modified application as fire protection tape applies to all PE/PE-X laminated pipes with an aluminium base course thickness of ≤ 0.15 mm

Comments / Conditions



Continued insulation (if required) minimum fire classification B2:

- Not compulsory for fire protection purposes.
- Insulation thickness acc. to DIN 1988 or HeizAnlV



*DETAILED DESCRIPTION:
center the steel sheath of maximum thickness 0.6 mm and length = 150 mm in the bore in the solid wall. Fill the remaining cross section on the side of the solid wall with mortar. Cover the protruding part of the sheath with a mineral fiber strip of width ≥ 30 mm to insulate it against heat radiation.

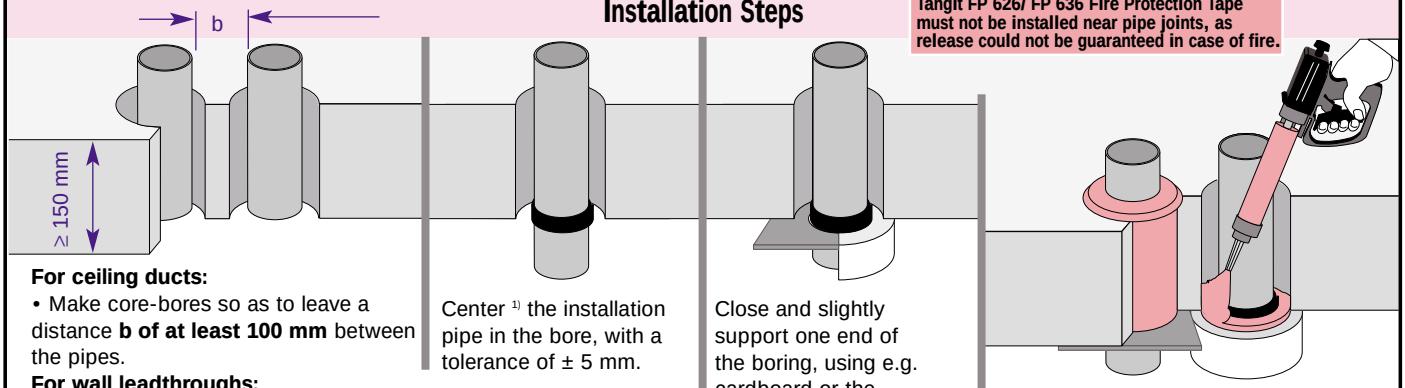
FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

INSTALLATION / INSULATION THICKNESS / CONSUMPTION

Installation Steps

IMPORTANT INSTALLATION NOTE:
Tangit FP 626/ FP 636 Fire Protection Tape must not be installed near pipe joints, as release could not be guaranteed in case of fire.

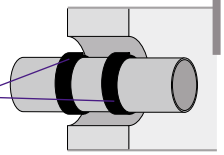


For ceiling ducts:
• Make core-bores so as to leave a distance **b of at least 100 mm** between the pipes.

For wall leadthroughs:
• Make core-bores **Distance b ≥ 0 mm**. The fire protection tapes may touch each other.

Follow the instructions given in the table to wrap Tangit fire protection tape around the pipe, either even with the lower surface of the ceiling or flush on both sides of the wall. For the first layer do not remove the protection film from the tape to facilitate positioning/moving the tape along the tube.

Center [1] the installation pipe in the bore, with a tolerance of ± 5 mm.

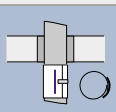


Close and slightly support one end of the boring, using e.g. cardboard or the continued insulation.

[1] The installation must ensure that the leadthrough is under no major constraining forces (except expansion.)

- Fill the boring with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the continued insulation of min. construction material class B2; (this is not mandatory for fire protection purposes.)

NOTE: measures have to be taken with all combustible pipes of types RT 4a and 5a made of PVC-U, PVC-C, ABS/ASA, ABS/ASA/PVC, FRIAPHON to absorb their expansion.

Up to 4 mm of expansion near the leadthrough	> 4 mm of expansion near the leadthrough
No measures required	 Prior to foaming, wrap a piece of PE-film ≤ 0,2 mm around the pipe, fasten it with crease-free adhesive tape and move it into position.

Polyolefin materials, e.g. PB, PE, PE-X, PP, multiply laminated pipes, cannot form a stable laminate with Tangit FP 500 Fire Protection Foam and will slip through the foam shell.

Consumption at 150 mm component thickness

Pipe material: RT 4a, RT 5a and RT 6 Supply pipes d [mm]	Pipe material: RT 4a + RT 5a Drain pipes d [mm]	Clearance volume [liters] clearance s = [mm], 3) Tangit FP 500 (s) 10	15	20	25	30	Tangit Fire Protection Tape: Type	Width x thickness [mm]	Number of 2,5 mm layers 5)	Consumption [cm]	Minimum insulation thickness [mm]: Cold-working pipelines acc. to DIN 1988, 1), 2), 3), 6) at λ =0,04	Hot-working pipelines acc. to HeizAnlV, wall- and ceiling ducts 1), 3), 6) 50% at λ=0,04
12		0,10	0,19	0,30	0,44	0,59	FP 625	30 x 2,5	1	4,4	13	13
14		0,11	0,20	0,32	0,46	0,62	FP 625	30 x 2,5	1	5,0	13	13
16		0,12	0,22	0,34	0,48	0,65	FP 625	30 x 2,5	1	6,3	13	13
20		0,14	0,25	0,38	0,53	0,71	FP 625	30 x 2,5	1	8,0	13	13
25		0,16	0,28	0,42	0,59	0,78	FP 625	30 x 2,5	1	10,0	13	13
32		0,20	0,33	0,49	0,67	0,88	FP 625	30 x 2,5	1	12,5	13	20
40	40	0,24	0,39	0,57	0,77	0,99	FP 625	30 x 2,5	1	15,5	13	20
50	50	0,28	0,46	0,66	0,88	1,13	FP 625	30 x 2,5	2	34,5	13	25
	52	0,29	0,47	0,68	0,91	1,16	FP 625	30 x 2,5	2	35,7		
	56	0,31	0,50	0,72	0,98	1,20	FP 625	30 x 2,5	2	38,5		
63		X	0,55	0,78	1,04	1,31	FP 635	40 x 2,5	3	66,6	13	30 4)
	75	X	X	0,89	1,18	1,48	FP 635	40 x 2,5	4	103,0	13	30 4)
	78	X	X	0,92	1,21	1,53	FP 635	40 x 2,5	4	107,0		

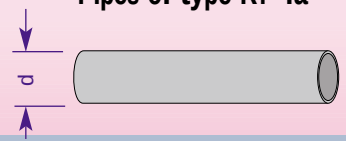
2) For installation in ducts adjacent to hot-working pipelines
3) Insulation of Tangit FP 500 Fire Protection Foam, λ= 0,04 W/m •K
4) No compliance required with HeizAnlV for 50% of minimum insulation thickness
6) Not applicable for drain pipes

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

THERMOPLASTIC INSTALLATION PIPES UP TO d = 78 mm

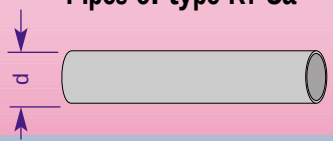
Pipes of type RT 4a



RT 4a = thermoplastic installation pipes up to d = 78 mm with a wall thickness of 1.8 to 6.9 mm; for supply and drain pipes The following materials/systems are covered

- **PB, PE, PE-HD, LDPE, PE-X**[3]
- **PP** (for supply pipes)[3]
- **ABS/ASA, ABS/ASA/PVC**[3]
- **FRIATEC - FRIAPHON**[4]
- **GEBERIT** db20 and **PE-HD**[4]
- **UPONOR** - Skolan[4]
- **Wavin** Wavin AS[4]
- **WIRSBO-Velta rapex multi flexibel** [4]
- **PP/PE-X** laminated pipe with aluminium base course thickness ≤ 0,15 mm

Pipes of type RT 5a



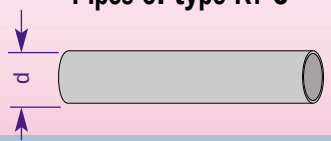
RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 5.6 mm; for supply and drain pipelines, covering the following materials/systems

- **PVC-U, PVC-HI, PVC-C**[3]

RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 6.9 mm; for drain pipes, covering the following materials/systems

- **PP** (for drain pipes)[3]

Pipes of type RT 6



RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 4.4 to 10.3 mm; for supply pipelines, covering the following materials/systems

- **PP** fusiotherm fiber reinforced pipes[4]

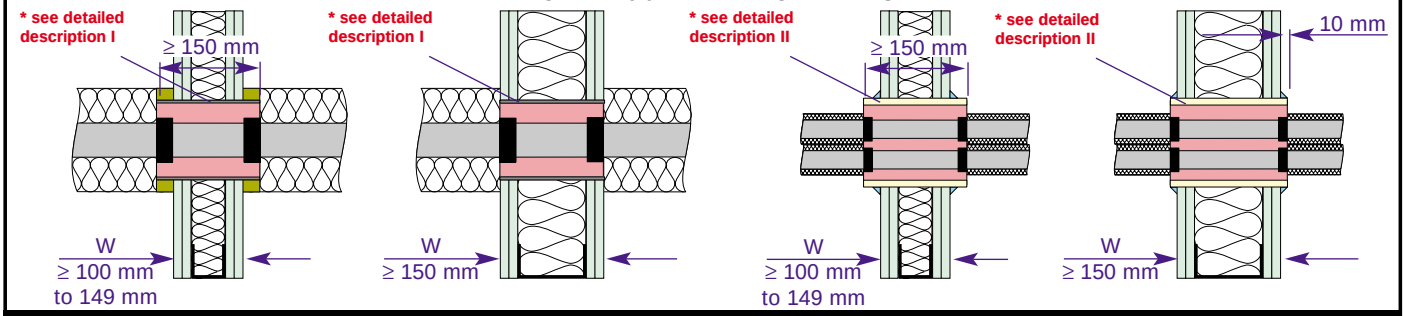
RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 2.9 to 5.8 mm; for supply pipelines, covering the following materials/systems

- **PB** fiber reinforced pipes[4]
- **Instaflex-Stabiverbund-Pipes**[4]

3) All pipe systems on the market can be used, if they are made of the materials listed
4) Pipe systems with special material combinations not classified under 3)

R90 tubular feedthroughs for pipes of type RT 4a, RT 5a and RT 6 in light F90 parting walls acc. to DIN 4102-4

LIGHT F90 PARTING WALLS



Design in accordance with the general building regulations approval by DIBt Berlin Z-19.17-1401

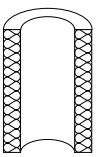
RECOMMENDED CLEARANCES:

- **Pipe diameter up to 40 mm = clearance 8 – 20 mm**
- **Pipe diameter > 40 mm = clearance 8 – 30 mm (30 mm for hot-working pipelines)**
- **A maximum clearance of 30 mm must not be exceeded at any point of the installation**

PROCESSING NOTES: no more than 2 pipes must be led through the component reveal made of PROMATECT H fire protection boards. Use filler supplied by wall manufacturer and follow PROMAT's installation instructions to fit the component reveal into the light F 90 parting wall. The fire protection tapes may touch each other. Observe the dimensions specified for the distance between the fire protection tapes and the component reveal of c ≥ 30 mm.

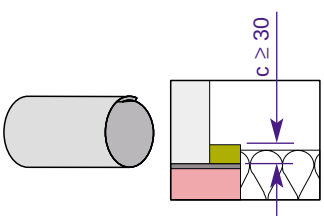
IMPORTANT NOTE:
Important note: the modified application as fire protection tape includes all laminated pipes based on RT 4 and RT 6 with an aluminium base course thikkness of ≤ 0.15 mm.

Comments / Conditions



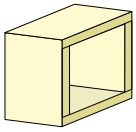
Continued insulation (if required) minimum fire classification B2:

- Not compulsory for fire protection purposes.
- Insulation thickness acc. to DIN 1988 or HeizAnlV



***DETAILED DESCRIPTION I**:
Detailed description I: center the steel sheath of maximum thickness 0.6 mm and length = 150 mm in the bore in the solid wall. Fill the remaining cross section on the side of the solid wall with mortar. Cover the protruding part of the sheath with mineral fiber strip of width ≥ 30 mm to insulate it against heat radiation.

***DETAILED DESCRIPTION II**:
follow the installation instructions and the approval submitted by the PROMAT company and the above-mentioned DIBt-approval to fit the component reveal of PROMATECT H fire protection boards of thickness ≥ 20 mm.



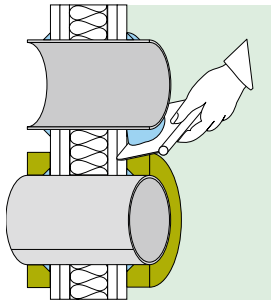
FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

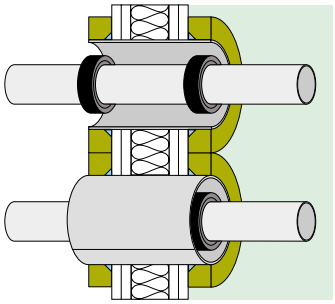
INSTALLATION / INSULATION THICKNESS / CONSUMPTION

Installation Steps

IMPORTAND INSTALLATION NOTE:
all installation and consumption details given on p. 11 also apply here.

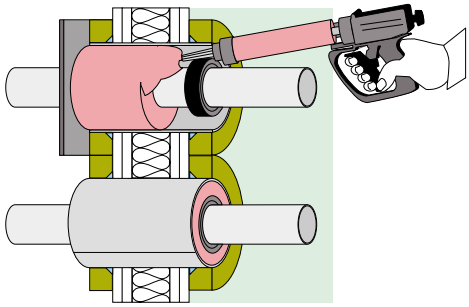


- Make bores
- Insert sheaths
- Close clearances for paneling with the filler supplied by the wall manufacturer
- Cover the projecting tube with a strip of mineral fiber of 30 mm thickness.



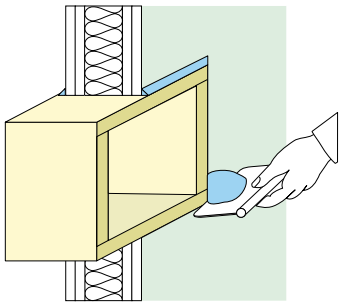
- Install and fix installation pipes*
- Wrap the fire protection tapes around each side of the pipe even with the outer edge of the component/sheath. See p. 11 for the type of fire protection tape and the number of windings.
  For the first layer do not remove the protection film from the tape to facilitate positioning/moving the tape along the tube.

*The pipe fixture has to ensure that the leadthrough is under no major constraining forces (except expansion.)

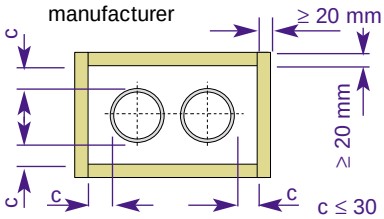


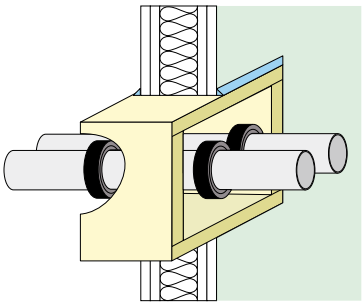
- Fill the sheath with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the non-combustible continued insulation of minimum fire protection class B2 (not mandatory for fire protection purposes).

IMPORTANT NOTE:
sheaths can be in direct contact with each other.



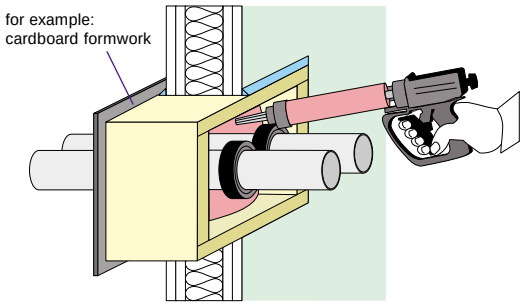
- Make rectangular cutout
- Create component reveal using PROMATECT H fire protection boards. Then fill all gaps with the filler supplied by the wall manufacturer





- Install and fix installation pipes*
- Wrap the fire protection tapes around each side of the pipe even with the outer edge of the reveal. See p. 11 for the type of fire protection tape and the number of windings.
  For the first layer do not remove the protection film from the tape to facilitate positioning/moving the tape along the tube.

*The pipe fixture has to ensure that the leadthrough is under no major constraining forces (except expansion.)



- Fill the component with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the non-combustible continued insulation of minimum fire protection class B2 (not mandatory for fire protection purposes).

IMPORTANT NOTE:

- A maximum of two pipes are allowed per rectangular cutout.
- Sheaths can be in direct contact with each other.

NOTE: measures have to be taken with all combustible pipes of types RT 4a and 5a made of PVC-U, PVC-C, ABS/ASA, ABS/ASA/PVC, FRIAPHON to absorb their expansion.

Up to 4 mm of expansion near the leadthrough	> 4 mm of expansion near the leadthrough
No measures required	Prior to foaming, wrap a piece of PE-film ≤ 0,2 mm around the pipe, fasten it with crease-free adhesive tape and move it into position.

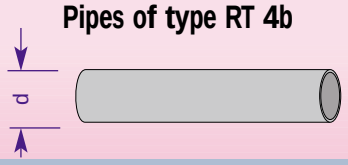
Polyolefin materials, e.g. PB, PE, PE-X, PP, multiply laminated pipes, cannot form a stable laminate with Tangit FP 500 Fire Protection Foam and will slip through the foam shell.

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

THERMOPLASTIC INSTALLATION PIPES UP TO d = 90 TO 160 mm

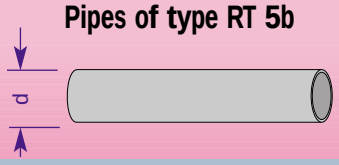
Pipes of type RT 4b



RT 4b = thermoplastic installation pipes up to d = 90 to 160 mm with a wall thickness of 2.2 to 6.2 mm, for supply and drain pipes The following materials/systems are covered

- PB, PE, PE-HD, PE-X[3]
- ABS/ASA, ABS/ASA/PVC[3]
- FRIATEC - FRIAPHON[4]
- GEBERIT db20 and PE-HD[4]
- UPONOR - Skolan[4]
- Wavin - Wavin AS[4]
- PP (for supply pipes)[3]

Pipes of type RT 5b



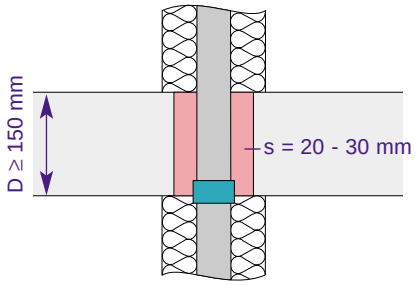
RT 5b = thermoplastic installation pipes up to d = 90 mm with a pipe wall thickness of 1.8 to 4.3 mm; for supply and drain pipelines, covering the following materials/systems

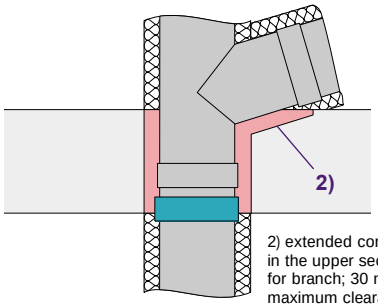
- PVC-U, PVC-HI, PVC-C[3]
- PP (for drain pipes)[3]

3) All pipe systems on the market can be used, if they are made of the materials listed
4) Pipe systems with special material combinations not classified under 3)

R90 tubular feedthroughs for pipes of types RT 4b and RT 5b with fire protection collars

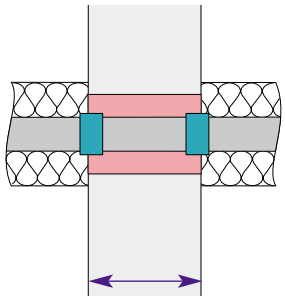
F90 SOLID CEILING





2) extended core drilling in the upper section for branch; 30 mm maximum clearance

F90 SOLID WALL



Design in accordance with the general building regulations approval by DIBt Berlin Z-19.17-1400

RECOMMENDED CLEARANCES:

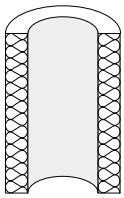
- **Pipe diameter 90 to 160 mm = clearance 20 to 30 mm (30 mm for hot-working pipelines); < 20 mm not possible due to FPC)**
- **Clearance must not be over 30 mm at any point of the installation.**

PROCESSING NOTES: cf. installation instruction on pp. 4 below, and 10

Comments / Conditions

Tangit Fire Protection Collars FP 709/FP 711/FP 713/FP 716

NOTE: the FPC can be fitted with a combustible structure-borne noise insulation (minimum B2) and a mortar bed (also in rectangular openings). No specific maximum clearance has to be observed.



Continued insulation (if required); minimum fire protection class: B2

- Not mandatory for fire protection purposes
- Insulation thickness acc. to DIN 1988 or HeizAnlV

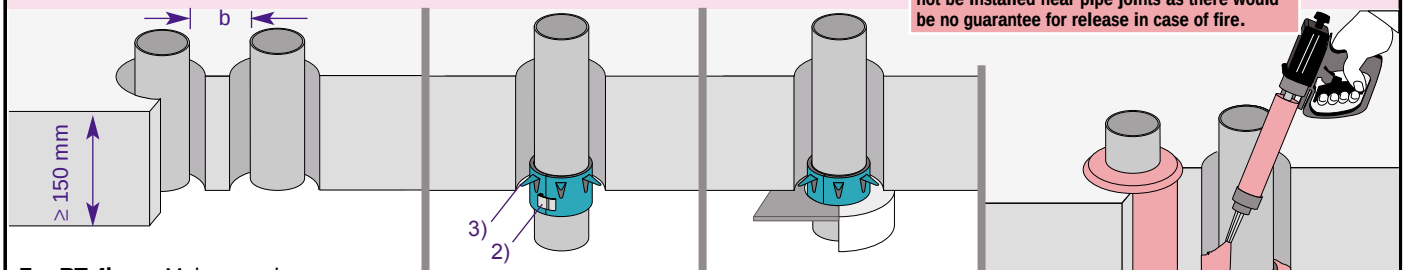
FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

INSTALLATION / INSULATION THICKNESS / CONSUMPTION

Installation Steps

IMPORTAND INSTALLATION NOTE:
Tangit FP 709 to 716 Fire Protection Collars must not be installed near pipe joints as there would be no guarantee for release in case of fire.



For RT 4b • Make core-bores; distance b ≥ 0 mm. The fire protection collars may touch each other.

For RT 5b • **Min. distance between pipes: b=100 mm**

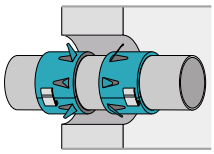
Center [1] the installation pipe in the bore, with a tolerance of ± 5 mm. Put the fire protection collar around the pipe, close the toggle-type fastener 2), align the spikes 3) and adjust the collar in its position in the bore.

Close and slightly support one end of the boring, using e.g. cardboard or the continued insulation.

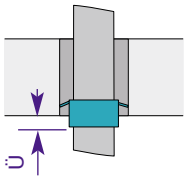
[1] The installation must ensure that the leadthrough is under no major constraining forces (except expansion.)

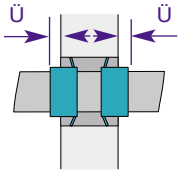
- Fill the boring with Tangit FP 500 foam, layer after layer, beginning on one side.
- Cut off excess foam after approx. 6 min.
- Fit the continued insulation if required.

Follow the instructions given in the table to install the Tangit Fire Protection Collar on the lower surface of the ceiling, or on both sides of the wall.

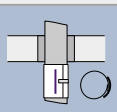


Ü = projection FPC = 30 mm





NOTE: measures have to be taken with all pipes of types RT 4b and 5b made of PVC-U, PVC-C, ABS/ASA, ABS/ASA/PVC, FRIAPHON to absorb their expansion.

Up to 4 mm of expansion near the feedthrough	> 4 mm of expansion near the feedthrough
No measures required	 prior to foaming wrap a piece of PE-film ≤ 0.2 mm around the the pipe, fasten it with crease-free adhesive tape and move it into position

Polyolefin materials, e.g. PB, PE, PE-X, PP, multiply laminated pipes, cannot form a stable laminate with Tangit FP500 Fire Protection Foam and will slip through the foam shell.

Consumption at 150 mm component thickness

pipe material: RT 4b, RT 5b — PB, PE, PE-X, PP, PVC-U, PVC-C, ABS/ASA/PVC, d [mm]	RT 4b, RT 5b — Drain pipes d [mm]	Tangit FP 500 — Clearance volume [liters] clearance s = [mm], 3): 10	15	20	25	30	Tangit Fire Protection Collar: Type	Width x thickness [mm] 5)	Projection Ü [mm]	Consumption f. ceiling pcs. 5)	Consumption f. wall pcs. 5)	Minimum insulation thickness [mm]: Cold-working pipelines acc. to DIN 1988, 1), 2), 3), 7) at λ =0,04	Hot-working pipelines acc. to HeizAnlV, wall- and ceiling ducts 1), 3), 7) 50% at λ =0,04
90	90	X	X	1,04	1,35	1,70	FP 709	80 x 8	30	1	2	13	30 4)
110	110	X	X	1,22	1,59	1,98	FP 711	80 x 8	30	1	2	13	30 4)
135	135	X	X	1,45	1,87	2,31	FP 713	80 x 8	30	1	2	13	30 4)
160	160	X	X	1,70	2,18	2,68	FP 716	80 x 12	30	1	2	13	30 4)

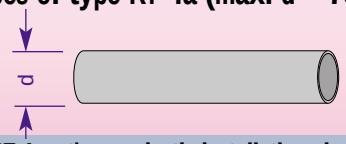
1) Not applicable for drain pipes
2) For installation in ducts adjacent to hot-working pipelines
3) Insulation of Tangit FP 500 Fire Protection Foam, λ= 0,04 W/m •K
4) No compliance required with HeizAnlV for minimum insulation thickness
5) Install on both sides for wall lead-ins
6) Delivery times on demand
7) Not applicable for drain pipes – Not possible due to minimum thickness of FP 500 near the Tangit Fire Protection Collar

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

THERMOPLASTIC INSTALLATION PIPES UP TO d = 160 mm

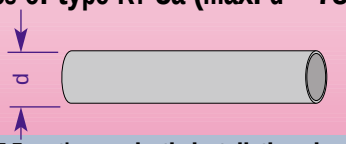
Pipes of type RT 4a (max. d = 78 mm)



RT 4a = thermoplastic installation pipes up to d = 78 mm with a wall thickness of 1.8 to 6.9 mm, for supply and drain pipes The following materials/systems are covered

- **PB, PE, PE-HD, LDPE, PE-X**[3]
- **PP** (for supply pipes)[3]
- **ABS/ASA, ABS/ASA/PVC**[3]
- **FRIATEC - FRIAPHON**[4]
- **GEBERIT** db20 und **PE-HD**[4]
- **UPONOR** - Skolan[4]
- **Wavin** Wavin AS[4]
- **WIRSBO-Velta rapex multi flexibel** [4]
- **PP/PE-X** laminated pipe with aluminium base course thickness ≤ 1.5 mm

Pipes of type RT 5a (max. d = 78 mm)



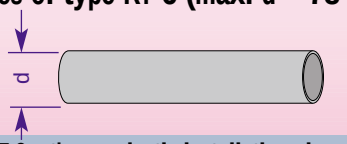
RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 5.6 mm; for supply and drain pipelines, covering the following materials/systems

- **PVC-U, PVC-HI, PVC-C**[3]

RT 5a = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 1.8 to 6.9 mm; for drain pipes, covering the following materials/systems

- **PP** (for drain pipes)[3]

Pipes of type RT 6 (max. d = 78 mm)



RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 4.4 to 10.3 mm; for supply pipelines, covering the following materials/systems

- **PP** fusiotherm fiber reinforced pipes[4]

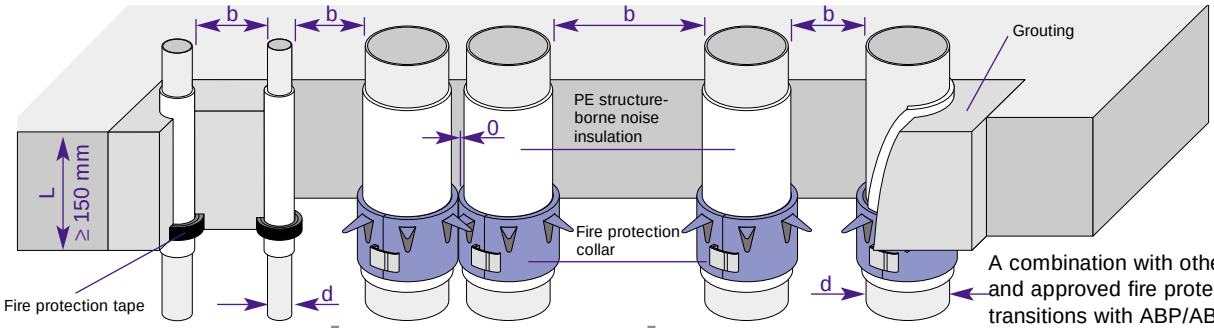
RT 6 = thermoplastic installation pipes up to d = 75 mm with a pipe wall thickness of 2.9 to 5.8 mm; for supply pipelines, covering the following materials/systems

- **PB** fiber reinforced pipes[4]
- **Instaflex-Stabiverbund-Pipes**[4]

3) All pipe systems on the market can be used, if they are made of the materials listed
4) Pipe systems with special material combinations not classified under 3)

R90 tubular feedthroughs for pipes of types RT 4 - 6

SQUARE OPENINGS IN SOLID F90 CEILINGS WITH GROUT SEALING



RT 4a, RT 5a, RT 6
d ≤ 78 mm
b ≤ 100 mm
(see p. 11 for installation instructions)

RT 4b
d > 78 mm bis b ≤ 160 mm
The FPCs may be in direct contact with each other (see p. 15 for installation instructions)

RT 5b
d > 78 mm bis b ≤ 160 mm
b ≤ 100 mm
(see p. 15 for installation instructions)

A combination with other tested and approved fire protection transitions with ABP/ABZ is possible if the spacing rules are observed. The maximum distance for adjacent transitions is always applicable.

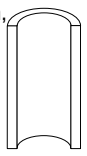
Design in accordance with the general building regulations approval Z-14.17-1383 and Z-19.17-1400

PROCESSING NOTES:

- The PE structure-borne noise insulation should be installed throughout (thickness 4 – 5 mm)
- Fit the fire protection tape / fire protection collar over the PE structure-borne noise insulation and move it into position (cf. pp. 11 and 15.) Laterally align the FPC's spikes.
- The number of installation pipes is unlimited.

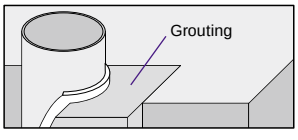
Comments / Conditions

PE structure-borne noise insulation, minimum building material classification B2, thickness 4 – 5 mm



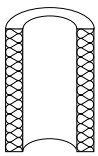
NOTE:
The insulation thicknesses specified in HeizAnlV cannot be reached within the transition.

Use mortar of class MG II, IIa or III for grouting.



Continued insulation (if required) minimum fire classification B2:

- Not compulsory for fire protection purposes.
- Insulation thickness acc. to DIN 1988 or HeizAnlV

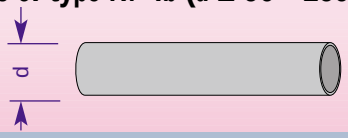


FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

THERMOPLASTIC INSTALLATION PIPES UP TO d = 160 mm

Pipes of type RT 4b (d ≤ 90 - 160 mm)



RT 4b = thermoplastic installation pipes d = 90 to 160 mm with a wall thickness of 2.2 to 6.2 mm, for supply and drain pipes The following materials/systems are covered

- **PB, PE, PE-HD, PE-X**[3]
- **ABS/ASA, ABS/ASA/PVC**[3]
- **FRIATEC - FRIAPHON**[4]
- **GEBERIT** db20 and **PE-HD**[4]
- **UPONOR** - Skolan[4]
- **Wavin** - Wavin AS[4]
- **PP** (for supply pipes)[3]

Pipes of type RT 5b (d = 90 - 160 mm)

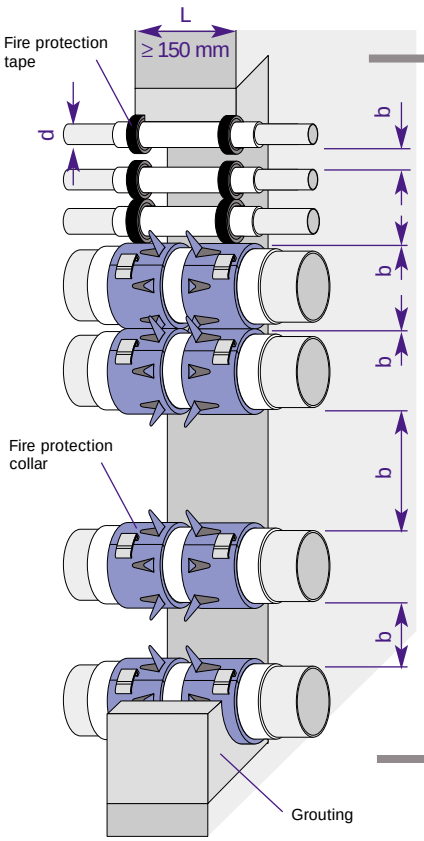
RT 5b = thermoplastic installation pipes up to d = 90 mm with a pipe wall thickness of 1.8 to 4.3 mm; for supply and drain pipelines, covering the following materials/systems

- **PVC-U, PVC-HI, PVC-C**[3]
- **PP** (for drain pipes)[3]

3) All pipe systems on the market can be used if they are made of the materials listed
4) Pipe systems with special material combinations not classified under 3)

R90 tubular feedthroughs for pipes of type RT 4 - 6

SQUARE OPENINGS IN SOLID F90 CEILINGS WITH SOLID FILLING MASONRY



RT 4a, RT 5a, RT 6
d ≤ 78 mm
b ≥ 0 mm
The fire protection tapes may be in direct contact with each other (see p. 11 for installation instructions)

b ≥ 0 mm In this combination, according to the general building regulations approval, the fire protection tape and collar (FPC) may be in direct contact.

RT 4b
d > 78 mm to b ≤ 160 mm: the FPC may be in direct contact (see p. 15 for installation instructions.)

b ≥ 0 mm The maximum spacing as specified by the general building regulations approval for the RT 5b pipes.

RT 5b
d > 78 mm to b ≤ 160 mm
b ≥ 100 mm
(see p. 15 for installation instructions.)

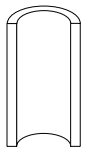
A combination with other tested and approved fire protection transitions with ABP/ABZ is possible if the spacing rules are observed. The maximum distance for adjacent transitions is always applicable.

Design in accordance with the general building regulations approval Z-14.17-1383 and Z-19.17-1400

INSTALLATION NOTES:

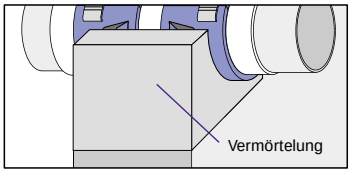
- The PE structure-borne noise insulation should be installed throughout (thickness 4 – 5 mm)
- Fit the fire protection tape / fire protection collar over the PE structure-borne noise insulation and move it into position (cf. pp. 11 and 15.) Laterally align the FPC's spikes.

Comments / Conditions

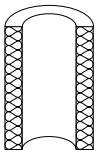


PE structure-borne noise insulation, minimum building material classification B2, thickness 4 – 5 mm

NOTE:
The insulation thicknesses specified in HeizAnlV cannot be reached within the transition.



Use mortar of class MG II, IIa or III for grouting.



Continued insulation (if required) minimum fire classification B2:

- Not compulsory for fire protection purposes.
- Insulation thickness acc. to DIN 1988 or HeizAnlV

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

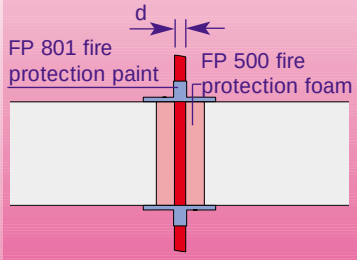
The Tangit Fire Protection Concept

POWER SUPPLY LINES

Type of line: electrical

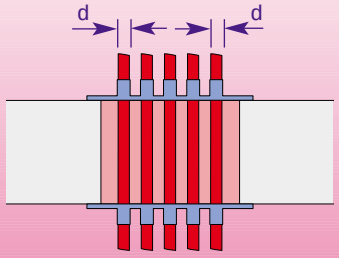
All types of power supply lines
- Power 230/400 volts
- Telephone lines
- Aerial leads
- Fiber optic cables
- Data lines

As single feedthroughs



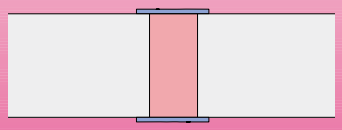
Maximum d for the single line: 20 mm

As a multiple feedthrough – also for cable brunches



Maximum d for the individual lines: 20 mm
Maximum grouping: ≤ 60% of the total cross section
Maximum cable bunch diameter: 150 mm

As an empty transition



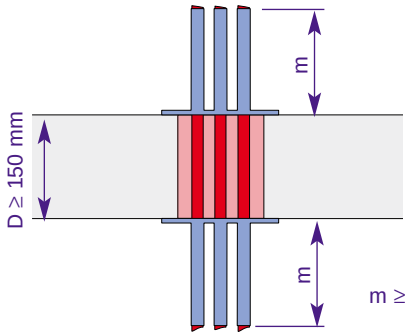
Max. diameter 250 mm, or 200 x 200 mm

Insulated S90 cable transitions for single, multiple or bunched cables

SOLID F90 CEILING

Breakthrough max. 200 x 200 mm

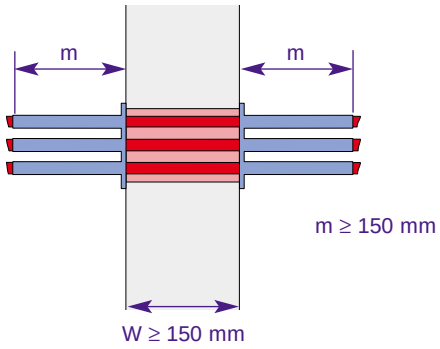
Core bore max. diameter 250 mm



SOLID F90 WALL

Breakthrough max. 200 x 200 mm

Core bore max. diameter 250 mm



Design in accordance with the general building regulations approval by DIBt Berlin Z-19.15-1367

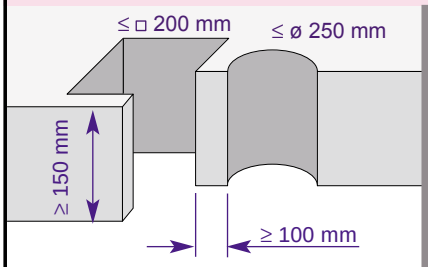
NOTES:
- Subsequent installation is possible
- Bundled power supply lines can be installed in the transitions (maximum diameter: 150 mm)
- It is not allowed to use shuttering made out of heat-conducting sheaths. The sheath must be removed after foaming (cf. the notes on p. 4 below).

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

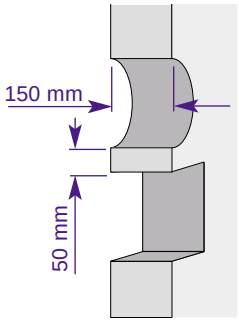
The Tangit Fire Protection Concept

POWER SUPPLY LINES

SOLID F90 CEILING

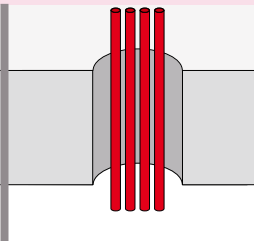


SOLID F90 WALL

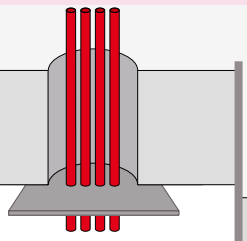


- Make breakthrough/core bore
  Spacing ≥ 100 mm or ≥ 50 mm

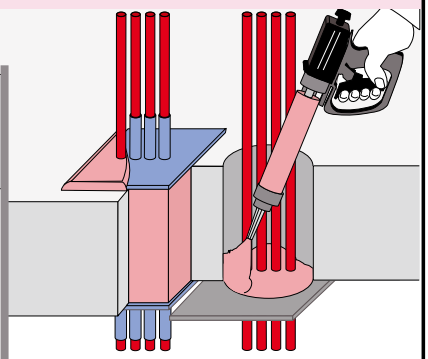
Installation steps / First installation



Power supply lines can be installed as a bunch. Follow note No. 1.



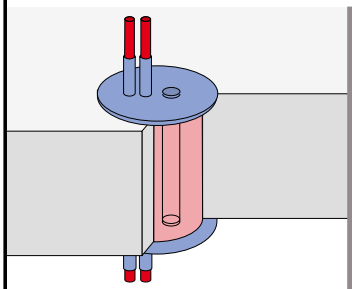
Close and slightly support one end of the boring, using e.g. cardboard.



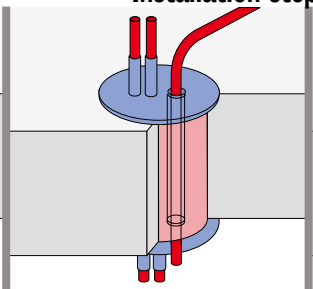
- Fill the boring with Tangit FP 500 foam, layer after layer, beginning on one side.
  Please follow note No. 2!
- Remove shuttering (e.g. cardboard) after foaming.
- Cut off excess foam after approx. 6 min.
- Use a soft brush to coat the surface of the foam with a layer of Tangit FP 801 fire protection paint at least 1.5 mm thick while wet (equivalent to 1 mm of dry coating).
  • Include the adjoining mortar/ concrete in the coating.
  • Coat the power supply cables to m ≥ 150 mm on both sides of the transition.

NOTE:
1) Install cables (max. diameter 20 mm) so that when injecting Tangit FP 500 foam the gussets between the cables are filled with foam; by alternative, gather the cables closely together. Maximum grouping of cables in the transition should be 60% of its cross section, or the maximum diameter of the cable bunch should be 150 mm. Cable installation must ensure that the transition is under no major constraining forces.
2) Use Tangit FP 520 2-component cartridge gun.

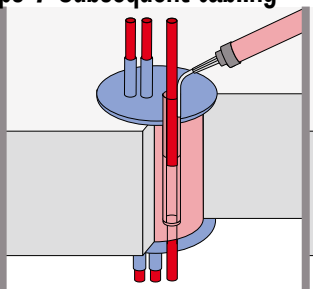
Installation steps / Subsequent cabling



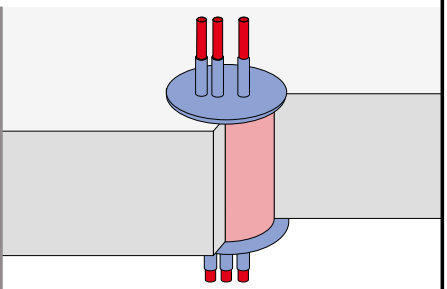
Carefully bore a hole through the Tangit FP 500 fire protection foam, e.g. using a screwdriver.



Insert the cable. Do not exceed maximum grouping to 60% of the transition cross section!



An extension tube may be used to fill the resulting tunnel with Tangit FP 500 foam. Follow notes 1 and 2!



Coat the new foam surface and cable with Tangit FP 801 (as described above).

CONSUMPTION

FP 500 fire protection foam
Volume of the transition minus the volume of the accommodated cables.

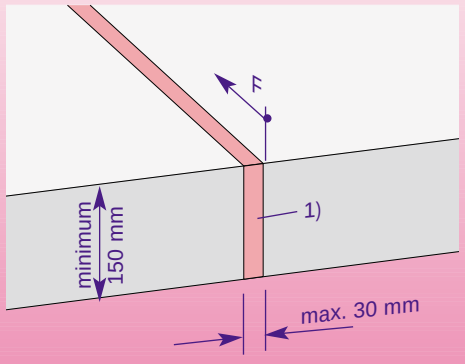
FP 801 fire protection paint
Consumption is approx. 1.5 kg/m² of coating.

FP 500 fire protection foam
FP 625/ 635 fire protection tape
FP 709/711/713/716 fire protection collar
FP 801 fire protection paint
continued insulation (non-combustible) RS 800 Rockwool
Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801
Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

The Tangit Fire Protection Concept

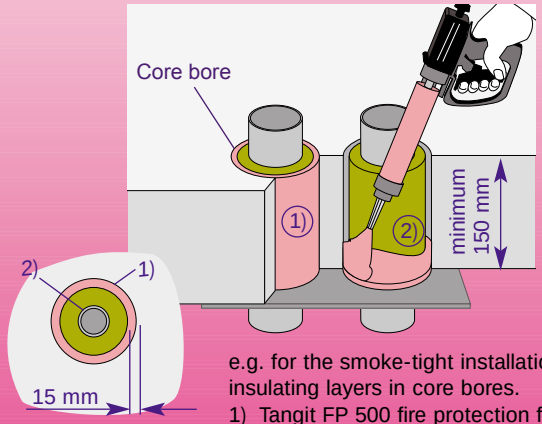
COMPONENT CLEARANCES / ANNULAR GAPS

Closure of component clearances



F = gap length ∞

Use as a substitute for mortar to close annular gaps



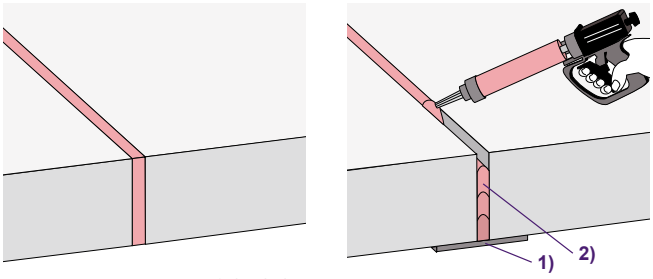
max. gap 15 mm

e.g. for the smoke-tight installation of insulating layers in core bores.
1) Tangit FP 500 fire protection foam
2) non-combustible insulation of melting point > 1000°C

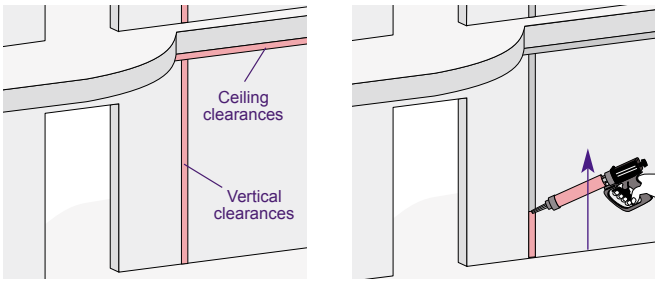
F90 Closing component clearances

Clearances between solid components — **processing** — **annular gaps with insulated pipes**

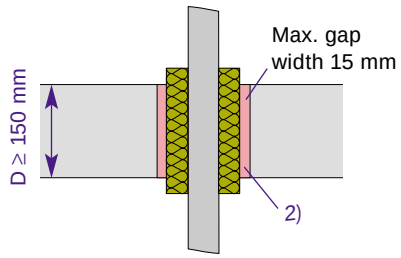
F90 SOLID CEILING



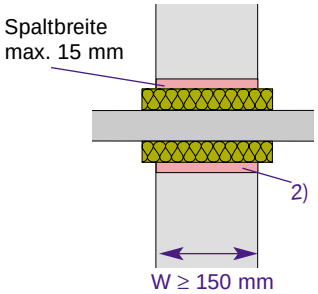
F90 SOLID WALL



F90 SOLID CEILING



F90 SOLID WALL



NOTES:
- Core bore spacing ≥ 50 mm
- Continued non-combustible insulation acc. to HeizAnlV
- This design is applicable only in combination with an ABP-ABZ of the relevant transition system as a substitute for mortar.

1) Close gap with permanent shuttering, e.g. strong cardboard and light support.
• Remove all combustible components, e.g. protection films, from the gaps before injecting the foam.

2) Fill the gaps with FP 500, layer after layer.
• Cut off excess foam after approx. 6 min.

Component clearances compliant with the general building regulations approval certificate P-3333/0210-MPA BS

RECOMMENDED GAP WIDTHS:

• Component clearances = gap width 8 – 30 mm **• annular gaps = gap width 8 – 15 mm**

(8 mm minimum clearance to accommodate the cartridge extension tube.)

FP 500 fire protection foam | FP 625/ 635 fire protection tape | FP 709/711/713/716 fire protection collar | FP 801 fire protection paint | continued insulation (non-combustible) RS 800 Rockwool | Strips of mineral fiber, m.p. >1000°C, height 50 mm, thickness 20 mm, to be pasted onto ceilings/wall with FP 801 | Continued insulation of minimum construction material class B2 (not compulsory for fire protection purposes.)

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For technical documentation, approvals and test certificates go to*:
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