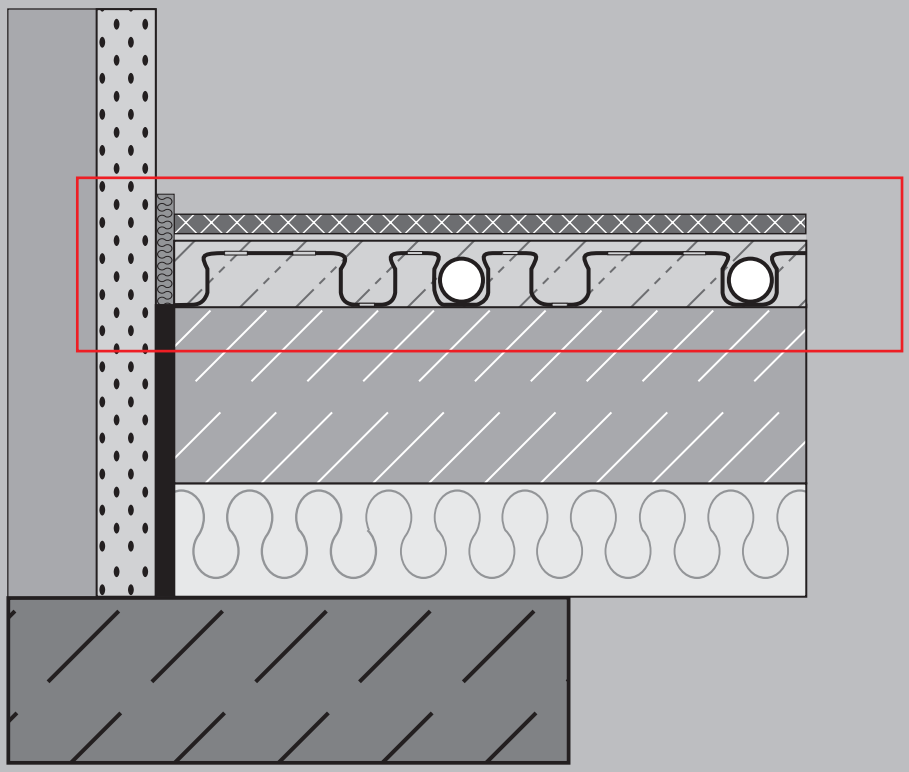
ROTH CLIMACOMFORT SYSTEM

TECHNICAL INFORMATION &
INSTALLATION INSTRUCTIONS



ENERGY AND SANITARY SYSTEMS

System description

System description/ system advantages

The new Roth ClimaComfort System for heating and cooling via floors, walls and ceilings in refurbished or new buildings stands out for its extremely low, 17-millimetre overall structure and its resulting high reaction speed.

Areas of use and general information

The Roth ClimaComfort System can be used for heating and cooling in refurbished or new buildings. It can be installed on floors, walls or ceilings.
In general, the description of the system relates to the planning and construction of the Roth ClimaComfort System which is embedded in a thin layer of mineral sealing compound and primer, the thickness of which does not correspond to the minimum nominal thickness of DIN 18560 German industry standard regarding screed used in the construction industry.

In order to distinguish it from conventional heating screed in accordance with DIN 18560-2, the term **"sealing compound and primer"** will be used below.
The system is used chiefly in refurbished and renovated buildings, and is in keeping with the latest technological developments. Nevertheless, system installers must check the suitability of the sealing compound and primer selected for the required application, taking into account the male conditions on site.

Standards and directives

When planning and creating a heating system, the following laws, directives, guidelines and standards must be taken into account:

- The law on energy efficiency (EnEG)
- The directive on energy efficiency (EnEV)
- The directive on heating costs (HeizkostenV)
- The individual administrative regulations issued by the federal states in relation to the EnEG law on energy efficiency

Standards, guidelines and contracting rules for awarding public works contracts

- DIN 1055 part 3 Design loads for buildings
- DIN EN 1264 T 1-4 Underfloor heating systems and their components
- DIN 1961 Contracting rules for awarding public works contracts, part B
- DIN EN 1991-1-1 Influences on supporting frameworks
- DIN 4102 Fire protection
- DIN 4108 Thermal protection
- DIN 4109 Noise protection
- DIN EN 12831 Rules for calculating the heating load in buildings
- DIN 4726 Plastic pipe connections for hot water underfloor heating systems
- DIN 4751 Water heating systems
- DIN 4807 Expansion tanks
- DIN EN ISO 15875 Plastic pipe connection systems for the installation of hot and cold water – cross-linked polyethylene (PE-X)
- DIN 18164 Foamed plastics as insulation materials in the construction industry
- DIN 18299 Contracting rules for awarding public works contracts, part C
- DIN EN 13162 to DIN EN 13171 Thermal insulation materials for buildings produced ex-works
- DIN 18195 The sealing of buildings
- DIN 18202 Building construction tolerances
- DIN 18336 Sealing work
- DIN 18352 Tiling and panelling work
- DIN 18353 Screed work
- DIN 18356 Parquet work
- DIN 18365 Floor covering work
- DIN 18380 Heating systems and central water heating systems
- VDI 2035 part 2 The prevention of damage in hot water heating systems, upstream corrosion
- Technical code of practice for interface coordination for heated floor constructions

System description

System components

Roth ClimaComfort system panel
Highly durable, transparent system panel with an installation height of 14 mm, made of semi-crystalline material. The special panel structure with undercutting ensures safe pipe affixation which conforms to the required standards. The ClimaComfort S5 10.50 x 1.30 mm system pipe can be laid in either a snail pattern or a meandering pattern.
In a 75 mm laying grid, diagonal laying at a distance of 105 mm is possible.
The ClimaComfort system panel has a two-sided overlap of 22 mm on each side to the bonding which joins the panels one below the other, and an active adhesive rear side to cover the entire area, and to securely affix the panel onto the subsurface. Openings for filling and deaeration for easy insertion of the sealing compound and primer ensure a safe, stable bond with the subsurface.
- Installation height: 14 mm
- Dimensions: 1072 x 772 mm
- Effective area: 0.785 m²
- Laying grid: 75. 150, 225 mm and diagonal grid, 105 mm
- Material: PET
- Building material class: B2 DIN 4102
- Material no.: 1115007104
- Packing unit: 5 panels

Roth ClimaComfort S5 system pipe
5-layer safety pipe in conformance with DIN 16833. 16834 and DIN 4721, with oxygen barrier layer in conformance with DIN 4726, which is additionally protected from an increase in mechanical stress by a PE cover. The pipe layers are bonded together in a non-detachable way using S5 CoEx technology. The ClimaComfort S5 system pipe is resistant against the formation of tension cracks and has been stabilised against the effects of thermal stress. The smallest bending radius is 3 x do, in conformance with DIN 16833, 16834 and DIN 4726.
- Dimension: 10.50 mm x 1.30 mm
- Maximum temperature: 70 °C, for short periods up to 100 °C
- Maximum pressure: 6 bar
- Permitted minimum bending radius: 3 x do
- Material no.: 1135003441
- Packing unit: 120 m

Sealing compound and primer
A finished admixture as a special, self-spreading, hydraulically hardened, high-strength compound to fill the Roth ClimaComfort system panel and to create a load-bearing layer bonded to the subsurface to support the floor coverings.
For use following the appropriate pretreatment, on concrete, cement screed, calcium-sulphite bonded screeds and ceramic coverings.
Load-bearing layer for any floor covering, based on special cement and mineral aggregates (special medium grain grading curve – hardened using artificial resin) for manual and machine processing.
- Consumption: approx. 25 kg/m² (3 mm system covering layer)
- Form of delivery: finished admixture in sacks, according to the manufacturer
- Processing time: approx. 30 min (20 °C/65% relative air humidity)
- Min. processing temperature: 5 °C on the floor
- Treadable: after approx. 3-4 hours
- Functional heating: after 3 days setting time (in accordance with the heating protocol)
- Ready for floor cover laying: after approx. 2 days – a test by the individual responsible for laying the floor covering is mandatory

Available from the following manufacturers:
Bostik Findley
Glass Baustoffwerke AG
PCI
Mapei
Henkel/Thomsit

Roth ClimaComfort compression fitting
For connecting the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, to the Roth manifold with flow rate indicator. Consisting of: brass union nut, female thread 3/4"/ 10.50 mm, brass pipe adapter with euro cone and compression ring.
- Dimension: 3/4" female thread / 10.50 mm
- Width across flats: 30 mm
- Material no.: 1135003444
- Packing unit: 2 items

Roth ClimaComfort T-connection
For connecting two each of the same length on the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, to the heating circuit connection of the Roth manifold with flow indicator.
Consisting of:
- A two unit set for supply and return.
- Dimension: 3/4" female thread / 2 x 10.50 mm
- Material no.: 1135003444
- Packing unit: 2 items

System description

System components

Roth ClimaComfort single submanifold,
For connecting heating circuits on the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, to a regulated heating supply, as a single manifold or for a combination of several units of the same circuit lengths. Consisting of a brass profile with one 1/2" male thread, and 1/2" female thread connection each, 1 heating circuit connection for the Roth Clima-Comfort S5 system pipe, 10.50 x 1.30 mm with connection screw fittings.

- One 1/2" male thread, and one 1/2" female thread connection
- Packing unit: 2 items
- Material no.: 1135003448

Roth ClimaComfort double submanifold
For connecting heating circuits of the same length on the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, to a regulated heating supply, as an individual manifold or for a combination. Consisting of: a brass profile with one 1/2" male thread, and one 1/2" female thread connection, 2 heating circuit connections for the Roth Clima-Comfort S5 system pipe, 10.50 x 1.30 mm with connection screw fitting.

- One 1/2" male thread, and one 1/2" female thread connection
- Packing unit: 2 items
- Material no.: 1135003449

Roth ClimaComfort coupling
Consisting of one brass double nipple and two connection screw fittings for connecting the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm (in case of repair)

- Dimension: 10.50 mm
- Packing unit: 1 item
- Material no.: 1135003447

Roth ClimaComfort transition nipple with male thread
Brass transition piece, 1/2" male thread on one side, for connecting the pipe and for connection to the Roth ClimaComfort S5 system pipe 10.50 x 1.30 mm, incl. connection screw fitting.

- Dimension: 1/2" male thread – 10.50 mm
- Packing unit: 1 item
- Material no.: 1135003447

Roth ClimaComfort transition press fitting
For directly connecting the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, with the remaining Roth system heating pipes.
Consisting of a brass double nipple with a press contour and thread connection for the Roth ClimaComfort S5 system pipe, 10.50 x 1.30 mm, incl. stainless steel press sleeve and connection screw fitting.

- Dimension: 17/10.50 mm
- Material no.: 1115007102
- Packing unit: 1 item
- Dimension: 20/10.50 mm
- Material no.: 1115007103
- Packing unit: 1 item

Roth ClimaComfort edge insulation strip
For separating the sealing compound and primer of adjacent structural components being assembled, 8 mm thick special foamed plastic, 80 mm high with welded on PE film, rear side with adhesive strip for affixation, multiple slits on the rear side.

- Dimension: 8 x 80 mm
- Packing unit: 25 m
- Material no.: 1135003442

Roth ClimaComfort expansion joint profile
For the safe separation of the panel areas, and the formation of a permanently elastic join, consisting of a closed cell PE core with stable PET coating, and self-adhesive contact surfaces, angled at 90°, with a width of 8 mm, a height of 40 mm, and a length of 1800 mm.

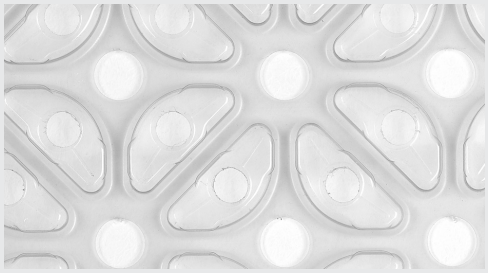
- Packing unit: 1 item
- Material no.: 1135003443

Roth ClimaComfort pipe fix
U-rail with 25 mm perforated grid for affixing the pipes on uneven surfaces (walls and ceilings), adjusted to the Roth ClimaComfort S5 system pipe, 10.50 mm with set separation points. The lower side is self-adhesive.

- Dimension: 4000 x 30 x 15.50 mm
- Packing unit: 5 items
- Material no.: 1135003450

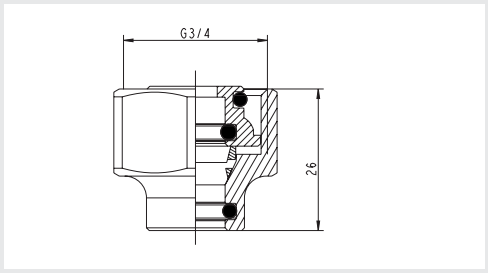
System description

System components

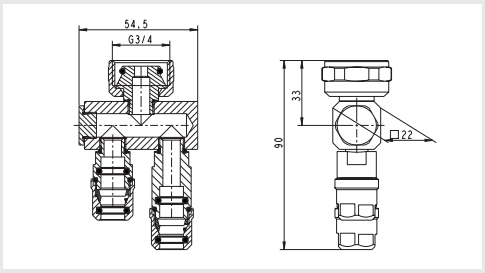


Roth ClimaComfort system panel

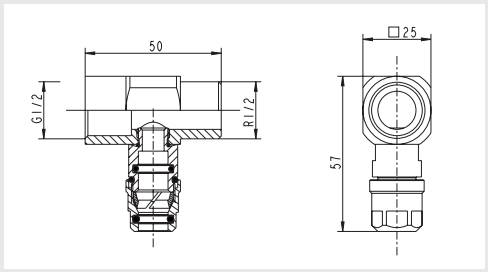
Roth ClimaComfort S5 system pipe



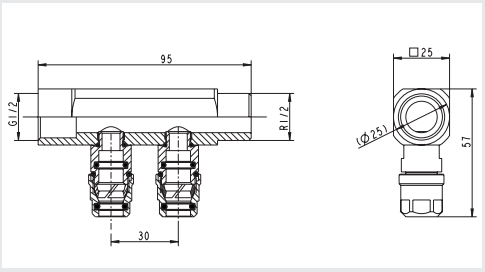
Roth ClimaComfort compression fitting



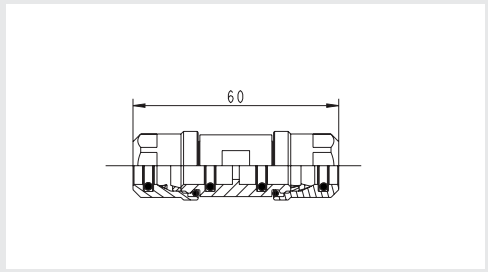
Roth ClimaComfort T-connection



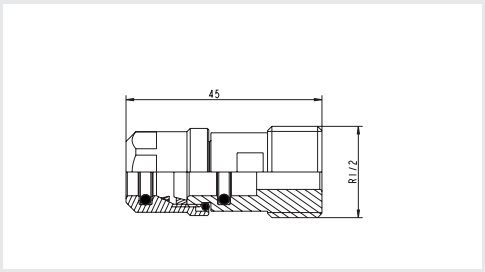
Roth ClimaComfort single submanifold



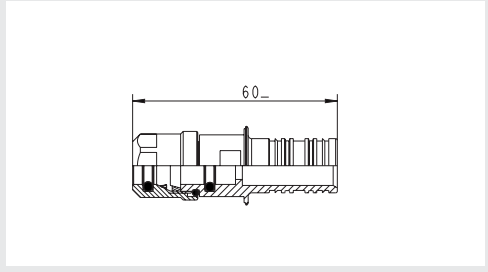
Roth ClimaComfort double submanifold



Roth ClimaComfort coupling



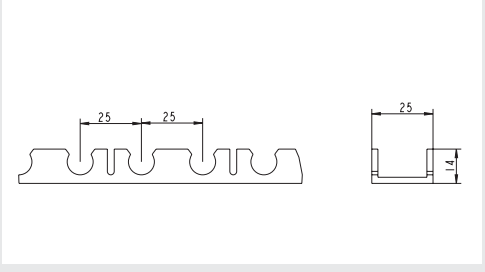
Roth ClimaComfort transition nipple with male thread



Roth ClimaComfort transition press fitting

Roth edge insulation strip 160 mm

Roth expansion joint profile



Roth ClimaComfort pipe fix

Layout & project planning

Layout & project planning

The calculation for the Roth ClimaComfort System is made on the basis of the DIN EN 1264, part 2 basic characteristic curve and the DIN EN 12831 standard heating load calculation.

The system layout is based on the sizes calculated according to DIN EN 1264, taking into account the permitted limit values taken from the system performance charts.

Insulation requirements for existing buildings

Ceilings separating residential apartments
For ceilings separating residential apartments, the insulation requirements in accordance with the EnEV law do not apply. The insulation standard for ceilings separating residential apartments in accordance with DIN EN 1264 of $R_{\lambda,\ ins} \geq 0.75\ m^2\ K/W$ should be checked. The DIN EN 1264-4 standard can only be used as a guide, however, since its requirements relate to standard systems.

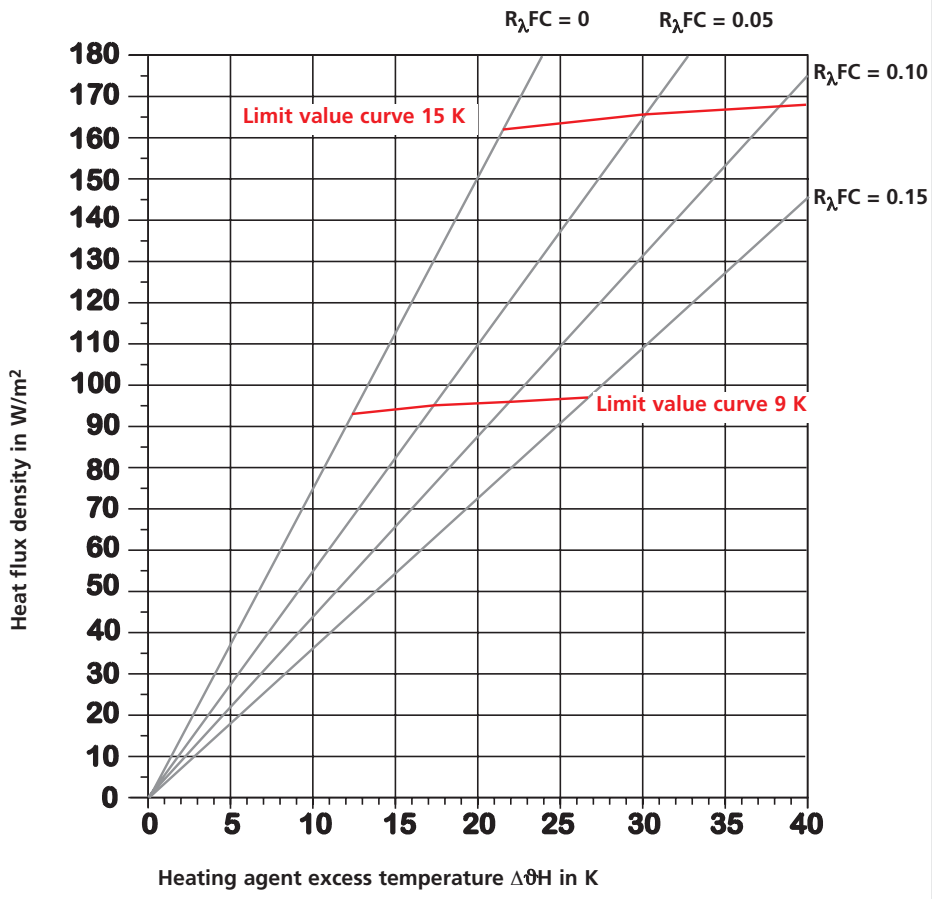
Ceilings between unheated rooms and the ground:
If the area of the building component to be renovated is smaller than 20% of the entire building component, there are no insulation requirements in accordance with the EnEV law, §8 section 1, item 2. For larger area sections, the insulation regulations in accordance with EnEV appendix 3, section 5, line d apply. During installation, or when renewing the overall floor structure (insulation, screed, floor covering etc.) in connection with underfloor heating, a U-value of 0.50 $W/m^2\ K$ for the overall building component should be maintained.

It should be ensured that sufficient insulation has been provided in the existing floor structure. If this is the case, the EnEV law in accordance with appendix 3, section 5 has been fulfilled. If no insulation has been provided, a check must be made as to whether an insulation layer of at least 65 mm WLG 040 should be attached to the lower side of the cellar ceiling. If the minimum ceiling height is not achieved, the EnEV requirements cannot be met. An application for exemption can also be made in accordance with EnEV §17 for ceilings which are adjacent to the ground, and on which it is not possible to apply an insulating layer retrospectively, since this is not feasible in accordance with EnEG §5, section 1.

Layout & project planning

System heat flux density

	ClimaComfort S5 system pipe 10.50 x 1.30 mm, sealing compound and primer 17 mm λ = 1.20 W/mK		Installation zone condition tFmax-ti = 9 K		Boundary zone condition tFmax-ti = 15 K	
	Thermal resistance, floor covering	System characteristic curve	System heat flux density limit value	System heating agent excess temperature limit value	System heat flux density limit value	System heating agent excess temperature limit value
	$R_{\lambda,FC}$ (m²K/W)	q(KH*Δt)	q(W/m²)	Δϑ H (K)	q(W/m²)	Δϑ H (K)
Laying distance 75 mm	0.00 0.05 0.10 0.15	7.508 x Δ t 5.497 x Δ t 4.335 x Δ t 3.579 x Δ t	92.10 93.80 95.60 97.40	12.27 17.07 22.05 27.22	161.60 164.60 167.70 170.90	21.53 29.94 38.67 47.74
Laying distance 150 mm	0.00 0.05 0.10 0.15	5.636 x Δ t 4.324 x Δ t 3.508 x Δ t 2.951 x Δ t	76.20 79.70 83.60 87.70	13.52 18.42 23.80 29.72	133.60 139.70 146.40 153.80	23.71 32.31 41.74 52.12
Laying distance 225 mm	0.00 0.05 0.10 0.15	4.412 x Δ t 3.472 x Δ t 2.862 x Δ t 2.434 x Δ t	62.10 65.70 69.70 74.20	14.09 18.93 24.36 30.50	109.00 115.30 122.30 130.20	24.71 33.20 42.73 53.49



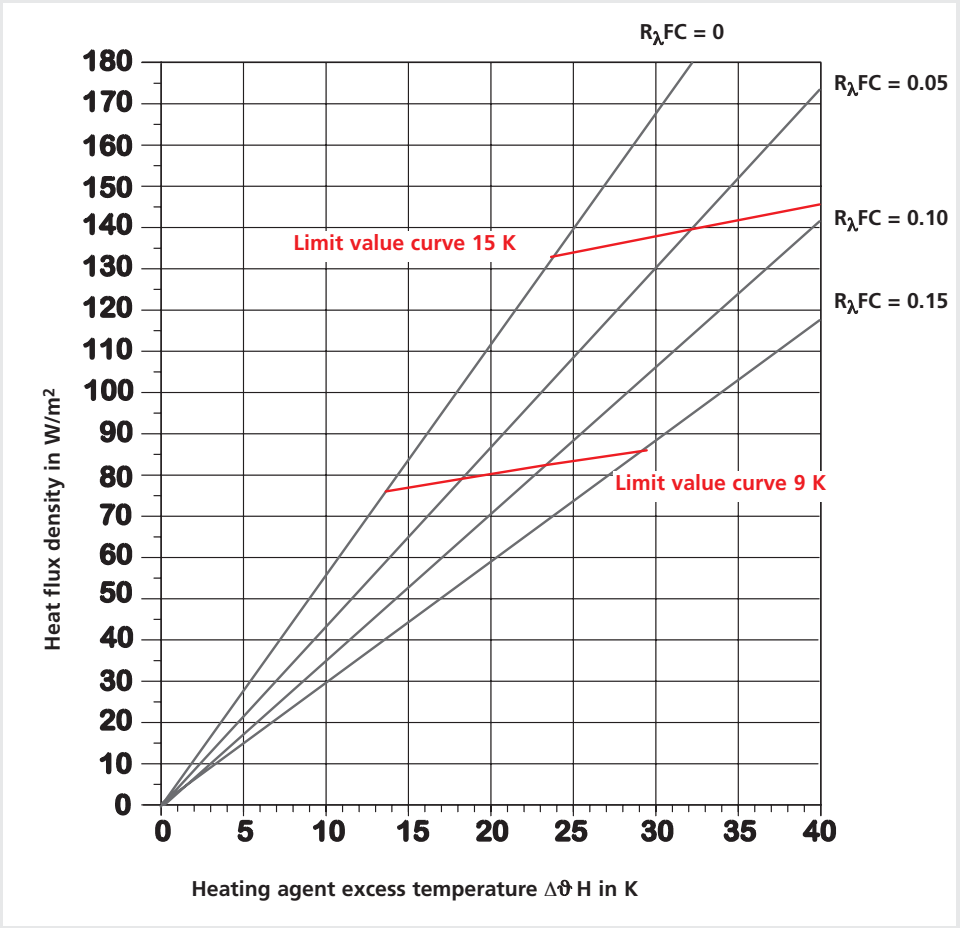
Roth ClimaComfort System Heat flux density for under-floor heating

Pipe division 75 mm Structure 17 mm, sealing compound and primer

Layout & project planning

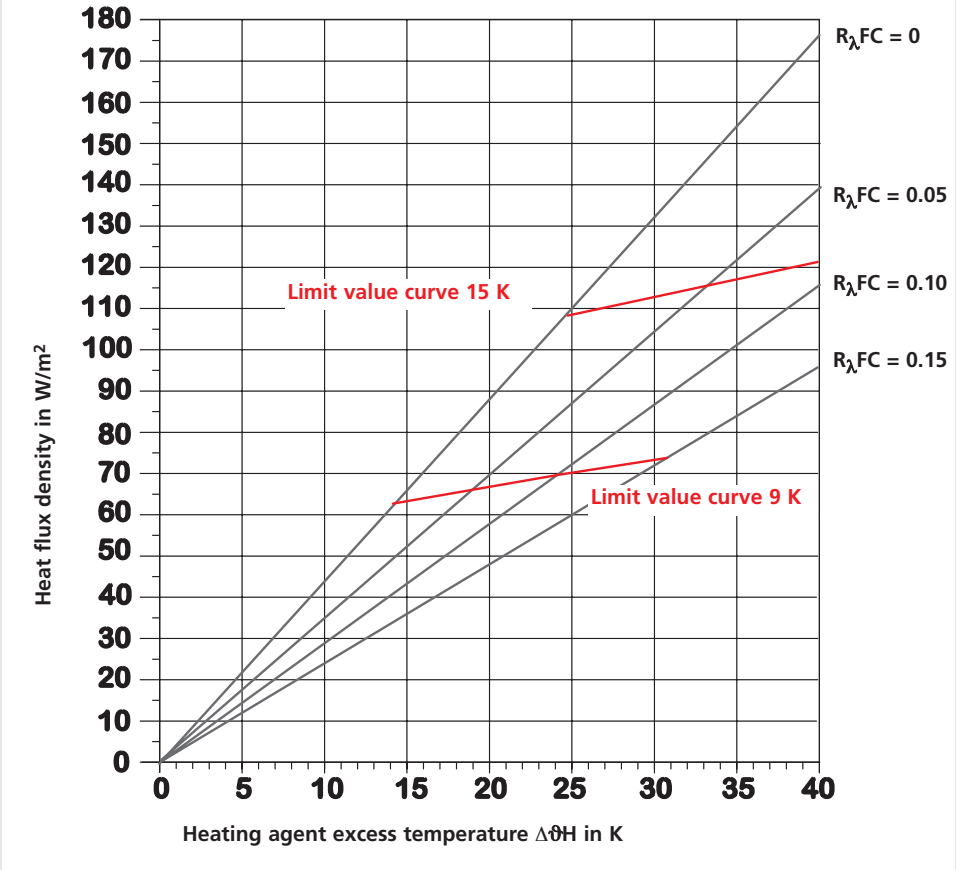
Roth ClimaComfort System
Heat flux density for under-floor heating

Pipe division 150 mm
Structure 17 mm, sealing compound and primer



Roth ClimaComfort System
Heat flux density for under-floor heating

Pipe division 225 mm
Structure 17 mm, sealing compound and primer



Performance data for the Roth ClimaComfort System

Thermal resistance of the floor covering $R_{\lambda,FC}$ = 0.00 m²K/W

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.00 m² K/W ceramic covering Spread 5 K - max. pressure loss/ HKR 250 mbar sealing compound and primer 17 mm = 25 kg/m²- λ-1.2W/mK			Heating agent temperature ϑH 27.50 °C	ts 30	tr 25	Heating agent temperature ϑH 30.00 °C	ts 32.5	tr 27.5	Heating agent temperature ϑH 32.50 °C	ts 35	tr 30	Heating agent temperature ϑH 35.00 °C	ts 37.5	tr 32.5	Heating agent temperature ϑH 37.50 °C	ts 40	tr 35
			Heating agent excess temp.		12.50	Heating agent excess temp.		15.00	Heating agent excess temp.		17.50	Heating agent excess temp.		20.00			22.50
	Laying distance	Heating pipe requirement Roth ClimaComfort S5 system pipe 10.5x1.3 mm	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area
	LD (cm)	L (m/m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)
Inside temperature ϑi 15.00 °C	7.5	13.30	94	23.5	4.06	113	25.0	3.62	131	26.5	3.28	150	28.0	3.01	169	29.5	2.80
	15	6.40	70	21.5	6.36	85	22.7	5.67	99	23.9	5.14	113	25.0	4.72	127	26.2	4.38
	22.5	4.40	55	20.2	8.52	66	21.2	7.59	77	22.1	6.88	88	23.0	6.32	99	23.9	5.86
Inside temperature ϑi 18.00 °C	7.5	13.30	71	24.6	4.84	90	26.2	4.17	109	27.7	3.70	128	29.2	3.34	146	30.7	3.06
	15	6.40	54	23.1	7.58	68	24.3	6.53	82	25.5	5.79	96	26.7	5.23	110	27.8	4.79
	22.5	4.40	42	22.1	10.15	53	23.0	8.75	64	24.0	7.76	75	24.9	7.01	86	25.8	6.42
Inside temperature ϑi 20.00 °C	7.5	13.30	56	25.3	5.63	75	26.9	4.68	94	28.5	4.06	113	30.0	3.62	131	31.5	3.28
	15	6.40	42	24.1	8.81	56	25.3	7.34	70	26.5	6.37	85	27.7	5.67	99	28.9	5.14
	22.5	4.40	33	23.3	11.80	44	24.3	9.82	55	25.2	8.52	66	26.2	7.59	77	27.1	6.88
Inside temperature ϑi 22.00 °C	7.5	13.30	41	26.0	6.85	60	27.7	5.40	79	29.2	4.54	98	30.8	3.96	116	32.3	3.54
	15	6.40	31	25.1	10.73	45	26.4	8.46	59	27.6	7.11	73	28.8	6.21	87	30.0	5.55
	22.5	4.40	24	24.5	14.37	35	25.5	11.32	46	26.5	9.52	57	27.4	8.31	68	28.4	7.43
Inside temperature ϑi 24.00 °C	7.5	13.30	26	26.7	9.14	45	28.4	6.48	64	30.0	5.20	83	31.6	4.41	101	33.1	3.87
	15	6.40	20	26.1	14.31	34	27.4	10.15	48	28.6	8.14	62	29.8	6.90	76	31.0	6.06
	22.5	4.40	15	25.6	19.16	26	26.7	13.60	38	27.7	10.89	49	28.7	9.25	60	29.6	8.12

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.05 m²K/W

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.05 m² K/W ceramic covering			Heating agent temperature ϑH 27.50 °C	ts 30	tr 25	Heating agent temperature ϑH 30.00 °C	ts 32.5	tr 27.5	Heating agent temperature ϑH 32.50 °C	ts 35	tr 30	Heating agent temperature ϑH 35.00 °C	ts 37.5	tr 32.5	Heating agent temperature ϑH 37.50 °C	ts 40	tr 35
	Laying distance	Heating pipe requirement Roth ClimaComfort S5 system pipe 10.5x1.3 mm	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area
	LD (cm)	L (m/m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)	q̇ (W/m²)	ϑs (°C)	HC (m²)
Inside temperature ϑi 15.00 °C	7.5	13.30	69	21.4	4.96	82	22.6	4.41	96	23.7	4.00	110	24.8	3.67	124	25.9	3.41
	15	6.40	54	20.1	7.53	65	21.1	6.71	76	22.0	6.08	86	22.9	5.59	97	23.8	5.18
	22.5	4.40	43	19.2	9.93	52	20.0	8.84	61	20.7	8.01	69	21.5	7.36	78	22.2	6.83
Inside temperature ϑi 18.00 °C	7.5	13.30	52	23.0	5.90	66	24.2	5.09	80	25.3	4.51	93	26.5	4.07	107	27.6	3.73
	15	6.40	41	22.0	8.97	52	23.0	7.73	63	23.9	6.86	74	24.8	6.20	84	25.7	5.68
	22.5	4.40	33	21.3	11.82	42	22.1	10.19	50	22.8	9.03	59	23.6	8.16	68	24.3	7.48
Inside temperature ϑi 20.00 °C	7.5	13.30	41	24.0	6.86	55	25.2	5.71	69	26.4	4.96	82	27.6	4.41	96	28.7	4.00
	15	6.40	32	23.2	10.43	43	24.2	8.68	54	25.1	7.53	65	26.1	6.71	76	27.0	6.08
	22.5	4.40	26	22.6	13.74	35	23.4	11.44	43	24.2	9.93	52	25.0	8.84	61	25.7	8.01
Inside temperature ϑi 22.00 °C	7.5	13.30	30	25.0	8.36	44	26.3	6.59	58	27.5	5.54	71	28.6	4.83	85	29.8	4.32
	15	6.40	24	24.4	12.70	35	25.4	10.01	45	26.4	8.42	56	27.3	7.35	67	28.3	6.57
	22.5	4.40	19	24.0	16.74	28	24.8	13.19	36	25.6	11.09	45	26.4	9.68	54	27.1	8.66
Inside temperature ϑi 24.00 °C	7.5	13.30	19	26.0	11.14	33	27.3	7.91	47	28.5	6.34	60	29.7	5.38	74	30.9	4.72
	15	6.40	15	25.6	16.94	26	26.6	12.02	37	27.6	9.63	48	28.6	8.17	58	29.5	7.17
	22.5	4.40	12	25.3	22.32	21	26.2	15.84	30	27.0	12.69	38	27.8	10.77	47	28.5	9.45

Performance data for the Roth ClimaComfort System

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.10 m²K/W

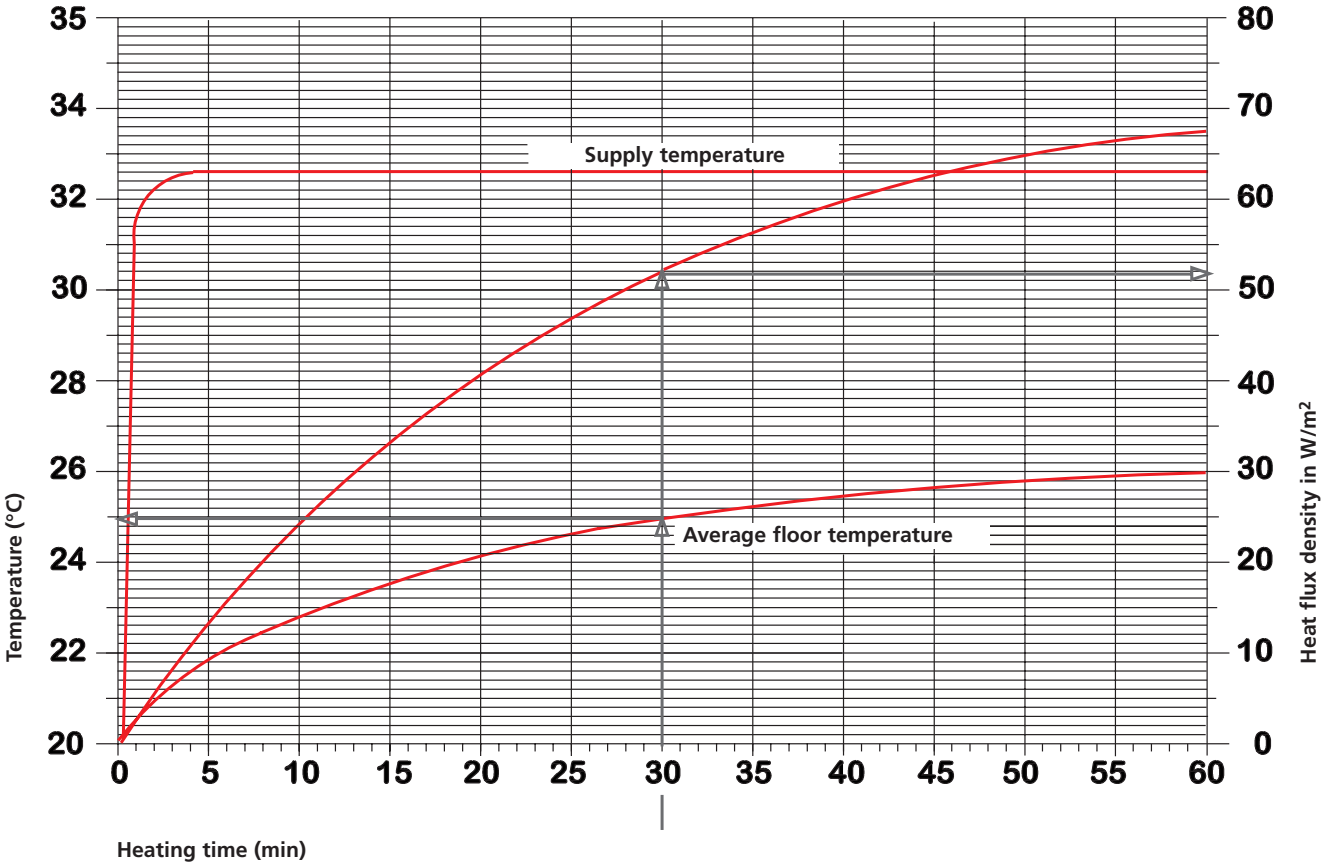
Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.10 m² K/W plastic			Heating agent temperature ϑ_H 27.50 °C ts 30 tr 25			Heating agent temperature ϑ_H 30.00 °C ts 32.5 tr 27.5			Heating agent temperature ϑ_H 32.50 °C ts 35 tr 30			Heating agent temperature ϑ_H 35.00 °C ts 37.5 tr 32.5			Heating agent temperature ϑ_H 37.50 °C ts 40 tr 35		
	Laying distance	Heating pipe requirement Roth ClimaComfort S5 system pipe 10.5x1.3 mm	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area
	LD (cm)	**L** (m/m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)
Inside temperature ϑ_i 15.00 °C	7.5	13.30	54	20.2	5.77	65	21.1	5.13	76	22.0	4.65	87	22.9	4.27	98	23.8	3.96
	15	6.40	44	19.3	8.61	53	20.0	7.66	61	20.8	6.95	70	21.5	6.38	79	22.3	5.92
	22.5	4.40	36	18.5	11.23	43	19.2	10.00	50	19.8	9.06	57	20.4	8.32	64	21.0	7.72
Inside temperature ϑ_i 18.00 °C	7.5	13.30	41	22.0	6.87	52	23.0	5.92	63	23.9	5.25	74	24.8	4.74	85	25.7	4.34
	15	6.40	33	21.3	10.25	42	22.1	8.83	51	22.9	7.83	60	23.6	7.08	68	24.4	6.49
	22.5	4.40	27	20.8	13.37	34	21.4	11.52	41	22.0	10.21	49	22.7	9.23	56	23.3	8.46
Inside temperature ϑ_i 20.00 °C	7.5	13.30	33	23.2	7.98	43	24.2	6.65	54	25.2	5.77	65	26.1	5.13	76	27.0	4.65
	15	6.40	26	22.7	11.91	35	23.5	9.92	44	24.3	8.61	53	25.0	7.66	61	25.8	6.95
	22.5	4.40	21	22.2	15.54	29	22.9	10.94	36	23.5	11.23	43	24.2	10.00	50	24.8	9.06
Inside temperature ϑ_i 22.00 °C	7.5	13.30	24	24.4	9.72	35	25.4	7.66	46	26.4	6.44	56	27.3	5.62	67	28.3	5.03
	15	6.40	19	24.0	14.51	28	24.8	11.43	37	25.6	9.62	46	26.4	8.39	54	27.2	7.51
	22.5	4.40	16	23.7	18.93	23	24.4	14.91	30	25.0	12.54	37	25.7	10.95	44	26.3	9.79
Inside temperature ϑ_i 24.00 °C	7.5	13.30	15	25.6	12.96	26	26.6	9.20	37	27.6	7.37	48	28.6	6.25	59	29.5	5.49
	15	6.40	12	25.3	19.35	21	26.2	13.73	30	27.0	11.00	39	27.8	9.34	47	28.6	8.20
	22.5	4.40	10	25.1	25.24	17	25.8	17.91	24	26.5	14.35	31	27.1	12.18	39	27.8	10.69

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.15 m²K/W

Thermal resistance of floor covering $R_{\lambda,FC}$ = 0.15 m² K/W plastic			Heating agent temperature ϑ_H 27.50 °C ts 30 tr 25			Heating agent temperature ϑ_H 30.00 °C ts 32.5 tr 27.5			Heating agent temperature ϑ_H 32.50 °C ts 35 tr 30			Heating agent temperature ϑ_H 35.00 °C ts 37.5 tr 32.5			Heating agent temperature ϑ_H 37.50 °C ts 40 tr 35		
	Laying distance	Heating pipe requirement Roth ClimaComfort S5 system pipe 10.5x1.3 mm	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area	Maximum heat flux density	Average surface temp.	Max. heating circuit area
	LD (cm)	**L** (m/m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)	$\dot{q}$ (W/m²)	ϑ_s (°C)	**HC** (m²)
Inside temperature ϑ_i 15.00 °C	7.5	13.30	45	19.3	6.51	54	20.1	5.80	63	20.9	5.26	72	21.6	4.83	81	22.4	4.48
	15	6.40	37	18.6	9.61	44	19.3	8.56	52	19.9	7.76	59	20.6	7.12	66	21.2	6.61
	22.5	4.40	30	18.1	12.44	37	18.6	11.08	43	19.1	10.05	49	19.7	9.23	55	20.2	8.56
Inside temperature ϑ_i 18.00 °C	7.5	13.30	34	21.4	7.76	43	22.2	6.68	52	23.0	5.93	61	23.7	5.36	70	24.5	4.91
	15	6.40	28	20.8	11.44	35	21.5	9.86	43	22.2	8.74	50	22.8	7.90	58	23.4	7.24
	22.5	4.40	23	20.4	14.82	29	20.9	12.77	35	21.5	11.32	41	22.0	10.23	47	22.6	9.38
Inside temperature ϑ_i 20.00 °C	7.5	13.30	27	22.7	9.02	36	23.5	7.51	45	24.3	6.51	54	25.1	5.80	63	25.9	5.26
	15	6.40	22	22.3	13.30	30	23.0	11.07	37	23.6	9.61	44	24.3	8.56	52	24.9	7.76
	22.5	4.40	18	21.9	17.22	24	22.5	14.34	30	23.1	12.44	37	23.6	11.08	43	24.1	10.05
Inside temperature ϑ_i 22.00 °C	7.5	13.30	20	24.1	10.98	29	24.9	8.65	38	25.7	7.28	47	26.5	6.35	55	27.3	5.68
	15	6.40	16	23.7	16.20	24	24.4	12.76	31	25.1	10.73	38	25.8	9.37	46	26.4	8.38
	22.5	4.40	13	23.4	20.98	19	24.0	16.53	26	24.6	13.90	32	25.2	12.14	38	25.7	10.85
Inside temperature ϑ_i 24.00 °C	7.5	13.30	13	25.4	14.29	21	26.2	10.39	30	27.1	8.33	39	27.9	7.07	48	28.6	6.20
	15	6.40	10	25.1	21.60	18	25.9	15.33	25	26.6	12.28	32	27.2	10.42	40	27.9	9.15
	22.5	4.40	9	25.0	27.98	15	25.6	19.85	21	26.1	15.91	27	26.7	13.50	33	27.3	11.85

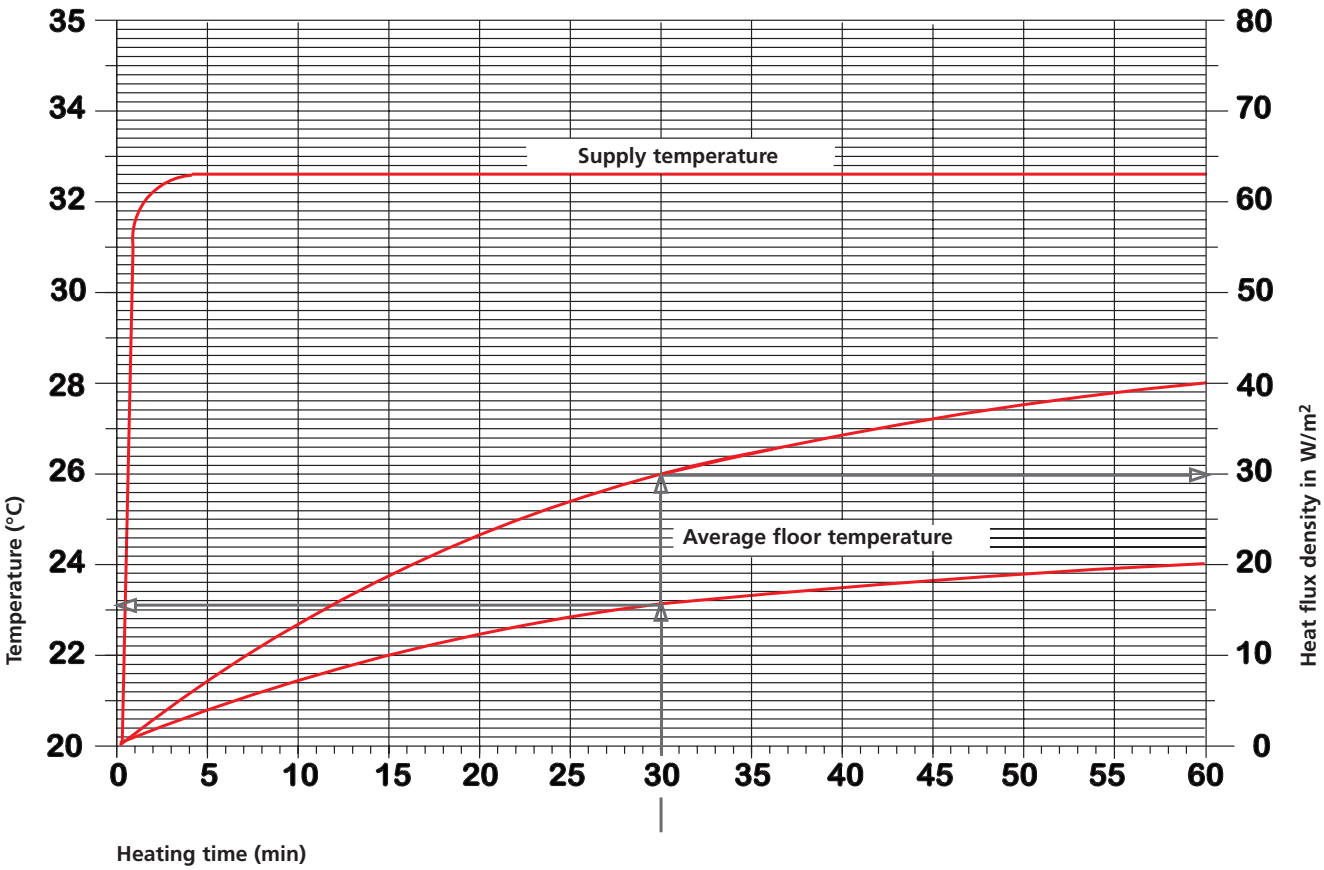
Layout & project planning

Roth ClimaComfort System
Heating curve
Pipe division 75 mm
Floor structure: 17 mm sealing compound and primer + tiles
($R_{\lambda}FC$ = 0.01 m²K/W)
Change in flow temperature: from 20 °C to 32.7 °C (constant)
Room temperature: 20 °C

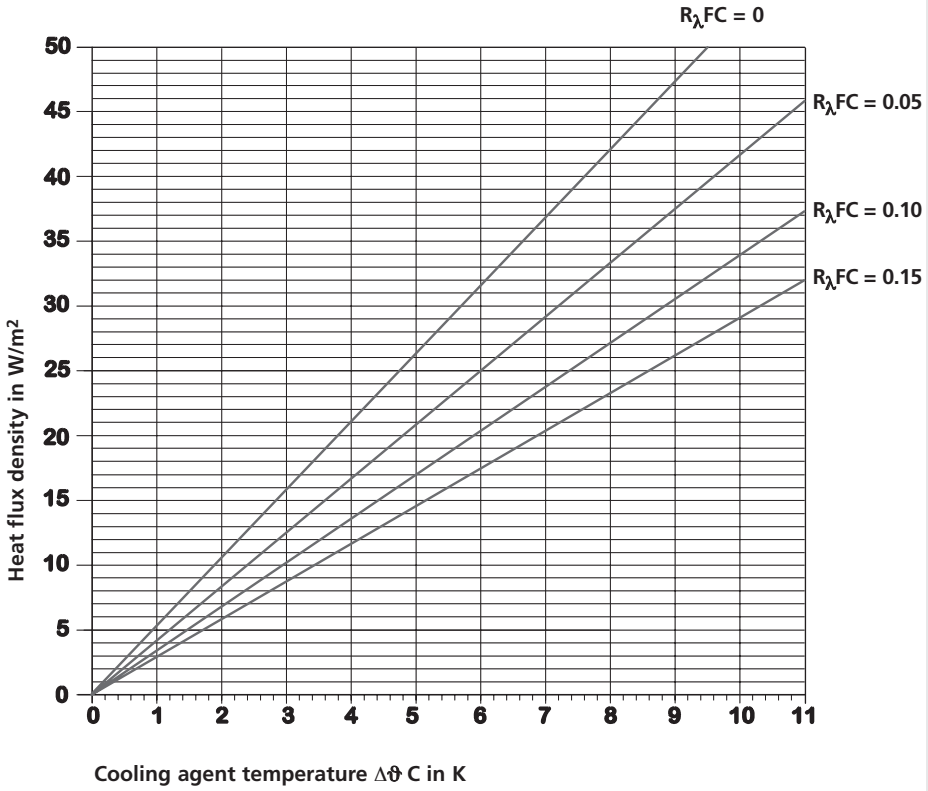


Layout & project planning

Roth ClimaComfort System
Heating curve
Pipe division 150 mm
Floor structure: 17 mm sealing compound and primer + tiles ($R_{\lambda}FC$ = 0.01 m²K/W)
Change in flow temperature: from 20 °C to 32.7 °C (constant)
Room temperature: 20 °C

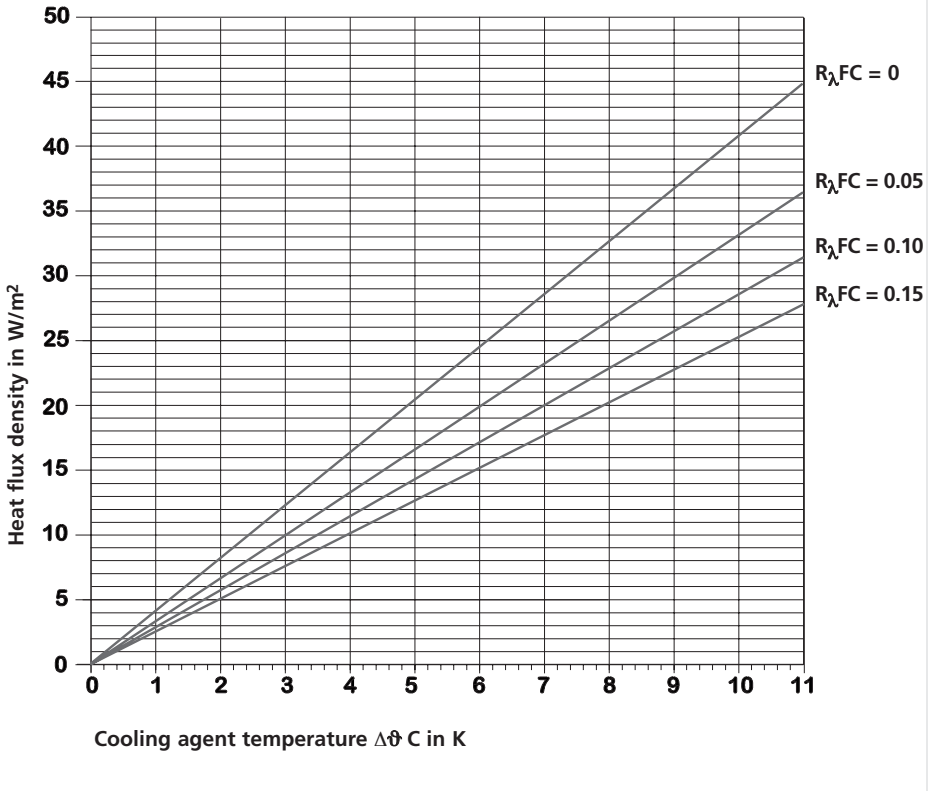


Layout & project planning



Cooling

Roth ClimaComfort System
Cooling flux density use
Floor
Pipe division 75 mm
Structure: sealing compound and primer 17 mm
Structure: floor covering
$R_\lambda FC = 0$ to $R_\lambda FC = 0.15$ m² K/W

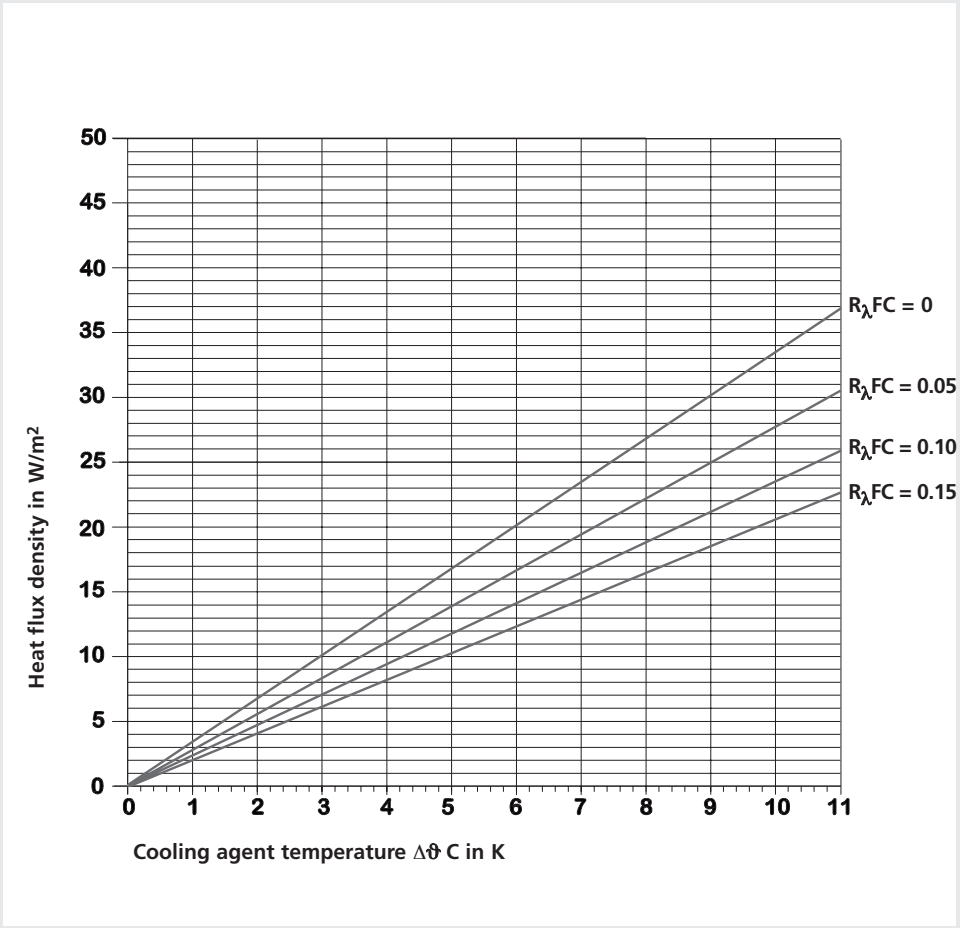


Cooling

Roth ClimaComfort System
Cooling flux density use
Floor
Pipe division 150 mm
structure: sealing compound and primer 17 mm
Structure: floor covering
$R_\lambda FC = 0$ to $R_\lambda FC = 0.15$ m² K/W

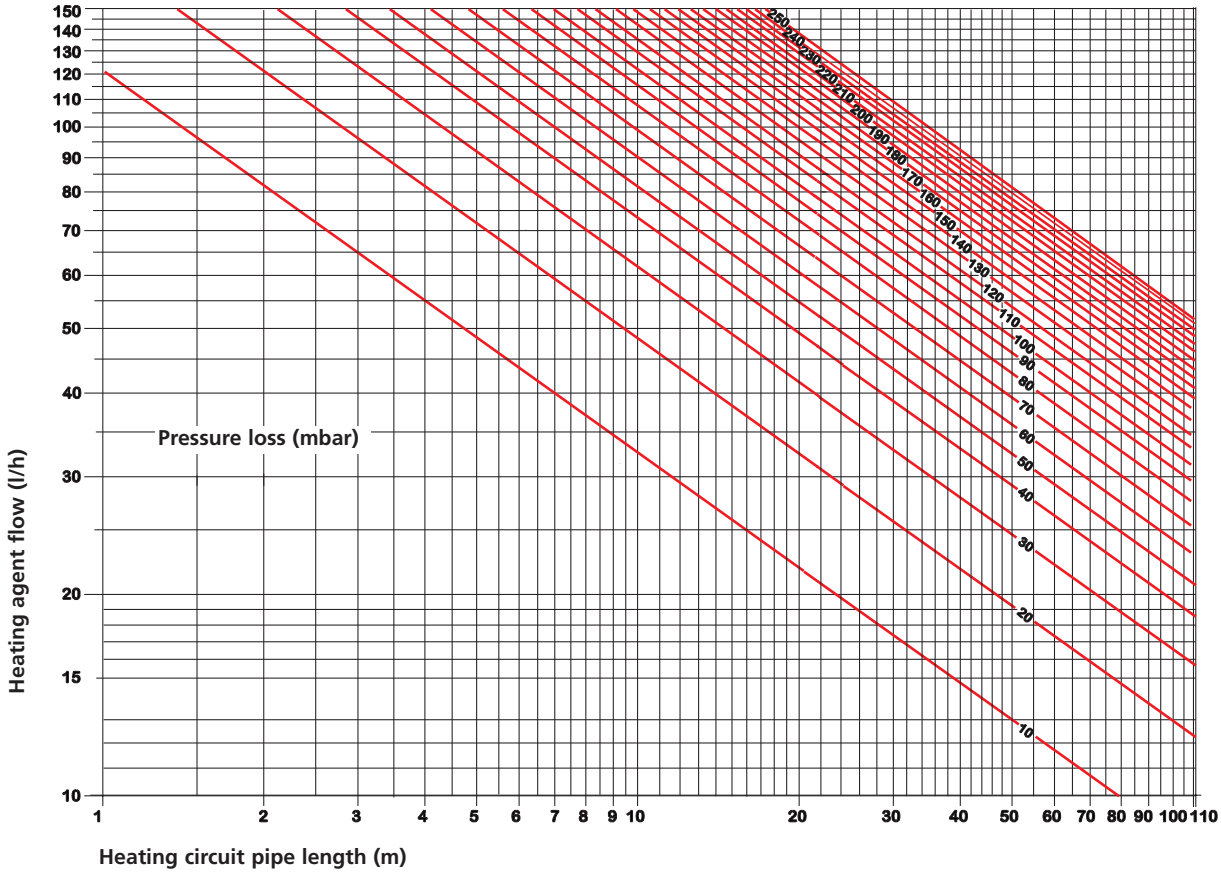
Layout & project planning

Roth ClimaComfort System
Cooling flux density use
Floor
Pipe division 225 mm
Structure: sealing compound and primer 17 mm
Structure: floor covering
$R_\lambda FC$ = 0 to $R_\lambda FC$ = 0.15 m² K/W

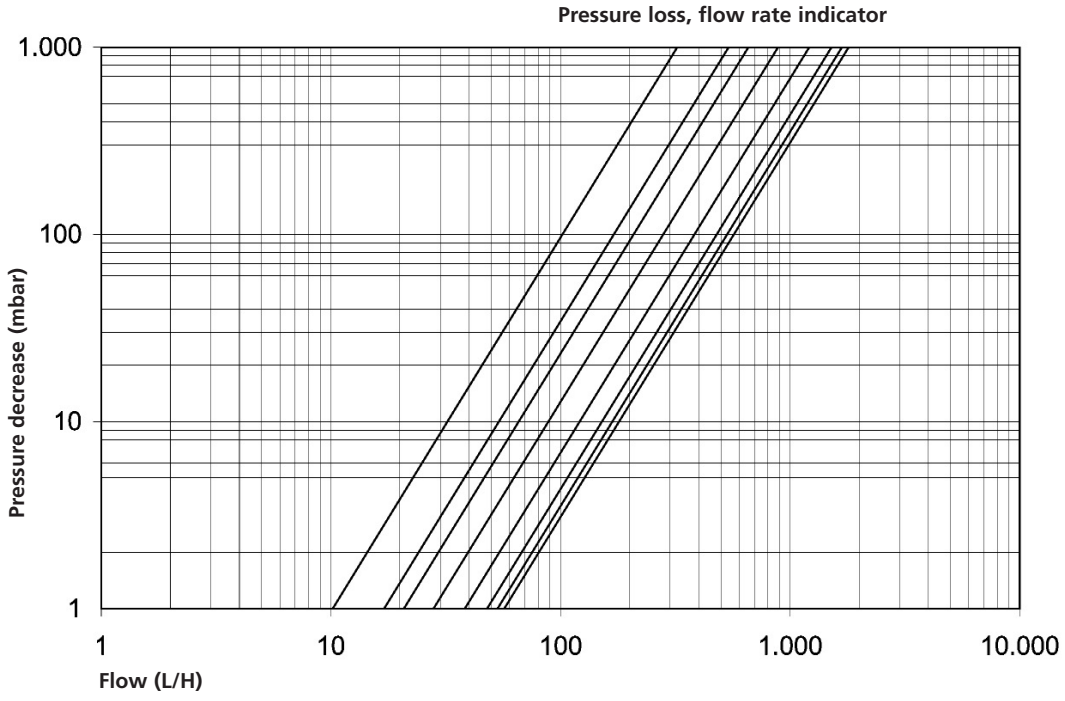


Layout & project planning

Roth ClimaComfort System
Pressure loss Δp in mbar
(1 mbar = 0.1 kPa)



Pressure loss, Roth heating circuit manifold with flow rate indicator



Installation

Installation requirements

Test the building requirements and preparative measures

Evaluation of the load bearing capacity of the subsurface
The evaluation of the subsurface or the evaluation of the measures to be taken in order to ensure the suitability of the substructure for supporting the Roth ClimaComfort System, particularly the creation of a permanently secure bond with the sealing compound and primer, should in principle be conducted by a specialist screed layer or floorer. Aside from this, several evaluation criteria should be observed:

Underfloor heating with the Roth ClimaComfort System on mineral subsurfaces
In principle, a self-contained building site is required before the overall construction installation work is conducted. Any subsequent damp (including excessive air humidity from outside) must be prevented, and minimum temperature of 10 °C must be maintained. The subsurfaces must be resistant to pressure and extension, be free of dirt and separating layers, and be permanently dry. Any loose elements which may reduce adhesiveness, such as oil, dust, wax, old coatings or other substances such as cement and plaster coverings, dust, adhesive residues, layers of paint etc. must be removed using suitable mechanical processes such as sanding, sandblasting, milling and vacuuming. Any cracks must be repaired in the correct manner. Areas which may be prone to increasing damp must be sealed using suitable agents provided by the manufacturer.

Cement-based compound screeds and cement screeds on a separating layer must conform to the standards set out in DIN 18560 and sit firmly on the concrete subsurface. The residual humidity of the cement screed may not exceed 2 CM-%.

Floating cement-based screeds must be at least 45 mm thick and be manufactured in conformance with DIN 18560. The residual humidity of the cement screed may not exceed 2 CM-%. The area should be limited to 40 m².

The calcium-sulphate self-levelling screed (anhydrite self-levelling screed) on a separation layer or insulating layer must be at least 35 mm thick and conform to DIN 18560. The residual humidity of the calcium-sulphate self-levelling screed may not exceed 0.5 CM-%. The surface must be checked for separation layers/sintered layers, and these must be removed using a suitable mechanical process, such as sanding, sandblasting or milling. In principle, the surface must be sanded using grain size 16, and the residues must be removed using a powerful industrial vacuum cleaner.

Concrete/finished concrete parts in accordance with DIN 1045 must be at least 3 months old, and their residual humidity may not exceed 3%. Movement joints must be retained.

Underfloor heating with the Roth ClimaComfort System on wood, dry construction elements and poured asphalt

The stability of **wooden floorboards** on their supporting beams should be checked, and their screw fittings should be tightened if necessary.
If the entire wooden floor surface has been putty filled, a check should be made to ensure that sufficient rear ventilation is available.

Particle boards V 100 E 1 and OSB boards must be installed in accordance with the requirements set out in DIN 68771 (CEN/TC 112) "Particle board underfloors". Over all areas, the damp protection for the building must be sufficient to prevent the formation of condensation water within the floor. A heating insulation layer must therefore be provided in conformance with DIN 4108 "Thermal insulation in building constructions".
When laying wooden particle boards and OSB boards on new, bare floors, a vapour barrier layer (PVC film at least 0.5 mm thick) must be installed. This film is overlapping and should be pulled up on adjacent building components so that the edges of the panels are also protected.

Gypsum or sandwich plaster boards must be installed in conformance with DIN 68771 (CEN/TC 112) "Particle board underfloors" (see the section on particle boards, V 100 E 1).

The **poured asphalt screed** is subject to the requirements set out in DIN 18560 and DIN 18533. The poured asphalt screed must be treated with a suitable primer and sanded using quartz sand. Any excess quartz sand must then be removed.

Installation

Installation requirements

The subsurfaces described above are subject to a special construction procedure, using Ardal thermal insulation tile boards, for example.

The existing movement joints should be retained. Expansion joints should also be used to the wall connection and in the door areas.

Any interior plastering work must have been completed, and the plaster must be dry.

Preparing the subsurface
Check the evenness according to DIN 18202 table 3, line 3/4, and if necessary, level out very uneven areas.

Determining the adhesive coat
The type of adhesive coat to be used depends on the material used for the old subsurface. Dispersion-bonded primers have been shown to work well for calcium sulphate and cement screeds. The latest development for magnesium or stone-wood screeds and poured asphalt screeds is to use synthetic resin-bonded adhesive coats. Wooden and ceramic subsurfaces, depending on their quality and pretreatment, can be treated either with dispersion-bonded or synthetic resin-bonded adhesive coats.
When selecting and applying the adhesive coat, the instructions issued by the manufacturer should be observed.

- Concrete or cement screed surfaces must be primed using dispersion primers (depending on the absorbency of the subsurface, dilute with water between 1:1 and 1:3). In order to close the pores, the primer must be reapplied if necessary.
- Anhydrite screeds must be primed using suitable synthetic resin primers.
- Any poured asphalt screeds which have not been sanded, ceramic or natural stone surfaces, should be pretreated with epoxy resin primers.
- For bend-resistant, stable wooden floorboards, a separation panel should be applied before the system is laid (according to the procedural instructions issued by the manufacturer). In exceptional cases, a layer of fibre-reinforced filler (layer thickness 10 mm) may be used. In order to do so, the subsurface must be thoroughly sanded and cleaned.
- Self-contained building components (windows/doors provided, building component and room air temperatures not below +5 °C)
- Function of the movement joints
- Any existing joints must be retained and if necessary, more joints should be added in the existing self-levelling screed.

Distributor connection The Roth manifold with flow rate indicator is used. Depending on the requirements, up to 12 heating circuit connections are available, which can be doubled using the T-connections.
In buildings where a larger number of heating circuits are installed, it should be ensured that the distributors are kept separately from each other, and that too many connection pipes are avoided.

Tools

To install the Roth ClimaComfort System, we recommend that the following tools be used:
- Roth scissors for pipe
- Roth pipe cutter
- Roth ripping knife
- Toothed roll

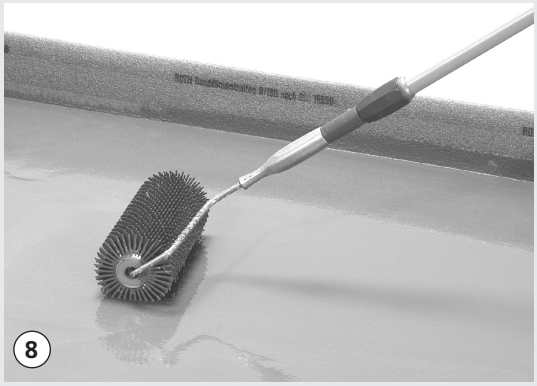
Installation instructions

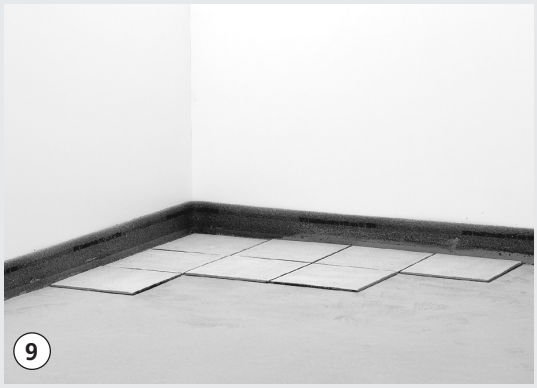
Installation steps

1. Check the installation requirements.
2. Lay out the Roth 160 mm edge insulation strip.
3. Install the system panels
   Remove the silicone papers from the active adhesive side of the ClimaComfort System panel.
4. Lay the first ClimaComfort System panel in a corner of the room. The PE film of the edge insulation strip is laid underneath the system panel.
5. The Roth ClimaComfort System panels have a special edge pattern so that each subsequent panel can be joined with the one which has already been laid so that the two panels overlap.

Installation instructions

6. Lay the pipes
7. Add the sealing compound and primer
8. Post-treatment
9. Add the floor covering

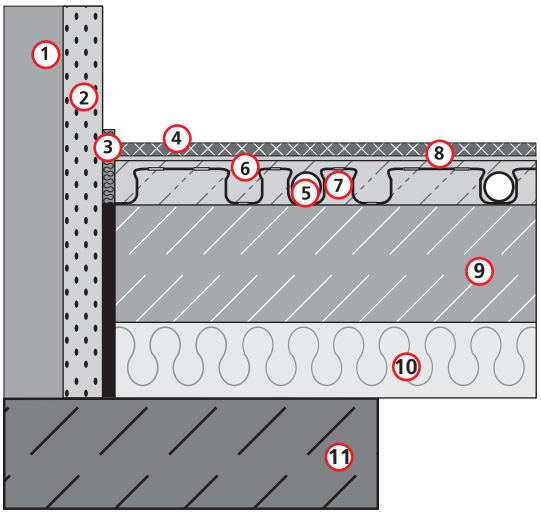




Installation steps

Installation setup

Roth ClimaComfort System



1 Wall
2 Plaster
3 Roth edge insulation strip
4 Floor covering
5 Roth ClimaComfort S5 system pipe 10.50 mm
6 Sealing compound and primer
7 Roth ClimaComfort System panel, 14 mm } 17.00 mm
8 Primer
9 Existing subsurface (screed etc.)
10 Existing insulation
11 Load-bearing substructure

Installation instructions / commissioning

Compression test (see leak test):

Before applying the sealing compound and primer, a water compression test should be conducted in accordance with DIN EN 1264 and a written protocol should be completed

Commissioning

Depending on the sealing compound and primer selected, functional heating is started after the appropriate setting time is over. In general, functional heating should not be started until at least 3 days after the compound has been applied. The procedure for functional heating should be completed in accordance with the procedural instructions set out in the heating record. The manufacturers' instructions should also be observed. The flow temperature should not exceed 55 °C during the procedure.

A record should be made of the functional heating.
The use of combined functional heating and heating to make the floor ready for cover laying should be checked in accordance with the guideline on the coordination of interfaces for heated floor structures.

Functional heating

Due to the thin sealing compound and primer layers, heating to make the floor ready for cover laying is not usually necessary. Due to the small spaces between the heating pipes, it is rarely possible to use the calcium carbide measuring method to check the readiness of the floor for cover laying. The "film test" has proved to be a practical way of doing so. The level of dryness is checked during heating operation at the maximum permitted flow temperature/heating capacity

according to the instructions issued by the manufacturer of the sealing compound and primer by applying a film of approx. 50 x 50 cm onto the sealing compound and primer over the heating register. The edges are attached using adhesive tape.
The rooms should continue to be well ventilated.
If no traces of humidity are visible underneath the film within 24 hours, the floor is ready for cover laying.

Heating to make the floor ready for cover laying

Applying the top floor: after functional heating has been completed and the floor is ready for cover laying, the sealing compound and primer is suitable for use as a supporting layer for floor coverings. Due to the self-levelling properties of the materials, no smoothing out is generally required. The decision as to whether other measures should be taken before the top floor is applied should be made by the person responsible for laying the floor covering.

When applying the top floor, DIN 18352 contracting rules for awarding public works contracts, part C ATV tiling and panelling, DIN 18365 contracting rules for awarding public works contracts, part C ATV laying floor coverings, and DIN 18356 contracting rules for awarding public works contracts, part C, ATV laying parquet, as well as the instructions issued by the manufacturer, should be observed.

Floor coverings

Heating record

for the Roth ClimaComfort System

(to be filled out by the heating construction company and included in the contract documents)

Contracting party/
Construction project: .....

Construction supervisor/
Architect: .....

Heating company: .....

Floorer: .....

ClimaComfort-System ..... m^2 installed on: .....

Sealing compound and primer applied on: .....

Manufacturer

Bostik-Findly Glass ARDEX Henkel Mapei PCI

Planned thickness of the selected levelling layer min. mm .....

Primer applied on: .....

Levelling layer applied on: .....

External temperature at start of heating approx. ..... °C

Start of functional heating on, at ..... °C (for at least 1 day)

Max. layout temperature from, at ..... °C (for at least 1 day)

The max. layout temperature was maintained for ..... days without a temperature reduction during the night

The heated surface was free of coverings or construction materials ☐ Yes ☐ No

System transferred on ..... Flow temperature ..... °C External temperature ..... °C

Confirmation of the functional heating according to the code of practice on the reverse of this sheet:

Place/date of signature

Building owner/contracting party Stamp/signature	Construction supervisor/architect Stamp/signature	Heating construction company Stamp/signature

Lead test record

for the completion of a leak test for surface heating systems in conformance with DIN EN 1264, part 4

Construction project: .....

Contracting party: .....

Construction stage: .....

In the construction project described above, a Roth radiant heating and cooling system of type ..... was installed.

ø Roth ClimaComfort S5 system heating pipe ..... mm

Procedure:

The heating circuits of the Roth ClimaComfort System must be checked for leakages on completion of the laying work on anhydrite and cement screed using a water compression test. It must be ensured that no leakages are present immediately before, and during the application of the filling and potting compound. The test pressure must be double that of the operating pressure, with at least 6 bar, however.

If there is a risk of freezing, suitable measures such as the use of antifreeze agents and temperature control of the building must be taken. If antifreeze agents are used which are not intended for use with the specified operation, they must be removed by emptying and rinsing the system with at least 3 times the water pressure.

- Roth ClimaComfort installation completed on: .....
- Start of compression test on: ..... with a test pressure of: ..... bar
- End of compression test on: ..... with a test pressure of: ..... bar
- Sealing compound and primer on: .....
- System pressure during application was ..... bar
- Antifreeze agents were added to the system water and the procedure completed as described. (Yes/no)
- The system was tested for leakages on: ..... approved.

Confirmation:

Building owner/contracting party Stamp/signature	Construction supervisor/architect Stamp/signature	Heating construction company/installation company Stamp/signature

Bostik Findley

Roth ClimaComfort System on mineral subsurface

Subsurface	Cement screed	Anhydrite (self-levelling) screed/old tile covering	Dry concrete floors*
1. Preparing the subsurface (following check)	Sand/vacuum	Sand/vacuum	Sand/vacuum
2. Priming the subsurface	**Bostik Nibogrund G 17** 2 hours drying time	**Bostik Nibogrund E 30** 24 hours drying time	**Bostik Nibogrund E 30** 24 hours drying time
3. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**
4. ClimaComfort System sealing compound and primer	**Bostik Niboplan DE** At least 3 mm above the upper edge of the pipe Max. 40 mm total height	**Bostik Niboplan DE** At least 3 mm above the upper edge of the pipe Max. 40 mm total height	**Bostik Niboplan DE** At least 3 mm above the upper edge of the pipe Max. 40 mm total height

* Concrete subsurfaces: for the following parquet coverings, the Bostik Nibogrund E 30 epoxy resin primer must be applied twice to block any humidity rising through the capillaries.

The floor covers should be laid after functional heating/heating to make the floor ready for cover laying as follows:

A Parquet (suitable for underfloor heating)	**NIBOFLOOR PK ELASTIC** Mosaic and short elements, B 3 toothing/finished parquet and long floor boards, B 5 toothing
B Ceramic covers	**ARDAL FLOORFLEX** Toothing must be adapted to the tile format. Fill the joints after 24 hours using **ARDAL FLEXFUGE** **(in damp rooms, the compound must be sealed before the ceramic is laid)**
C Textile covers	**BOSTIK POWER TEX** Min. toothing B1 (ensure that the rear side of the cover is sufficiently moist. If necessary, use larger toothing). Tufted floor covers should in principle have B 2 toothing

Bostik Findley

Roth ClimaComfort System on wooden and dry construction elements and poured asphalt

Subsurface	Poured asphalt	Particle boards V 100 E 1 OSB boards bolted onto long timbers	Wooden floor-boards	Gypsum or sandwich type plaster boards
1. Preparing the subsurface (following check)	Sand/vacuum	Sand/vacuum	Sand/vacuum	Sand/vacuum
2. Priming the subsurface	**Bostik Nibogrund E 30** (only for refurbishment)	**Bostik Nibogrund Elasto Fill**	**Bostik Nibogrund Elasto Fill**	**Bostik Nibogrund Elasto Fill**
3. Creating an even surface	**Bostik Niboplan 300** Max. total thickness 5 mm	**Bostik Niboplan FA 600** Min. 3; Max. 15 mm thickness	**Bostik Niboplan FA 600** Min. 3; Max. 15 mm thickness	**Bostik Niboplan FA 600** Min. 3; Max. 15 mm thickness
4. Gluing the Ardal insulation plates (decoupling)	**Ardal Flex mortar and tile insulation panel**	**Ardal Flex mortar and tile insulation panel**	**Ardal flex mortar and tile insulation panel**	**Ardal flex mortar and tile insulation panel**
5. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**
6. ClimaComfort System sealing compound and primer	**Bostik Niboplan DE** At least 3 mm over the upper edge of the pipe Max. 20 mm total height	**Bostik Niboplan DE** At least 3 mm over the upper edge of the pipe Max. 20 mm total height	**Bostik Niboplan DE** At least 3 mm over the upper edge of the pipe Max. 20 mm total height	**Bostik Niboplan DE** At least 3 mm above the upper edge of the pipe Max. 20 mm total height

After heating, the floor covers in the Roth ClimaComfort System on wooden and dry construction elements and poured asphalt should be laid as follows:

A Parquet (suitable for underfloor heating)	**NIBOFLOOR PK ELASTIC** Mosaic and short elements, B 3 toothing/finished parquet and long floor boards, B 5 toothing
B Ceramic covers	**ARDAL FLOORFLEX** Toothing must be adapted to the tile format. Fill the joints after 24 hours using **ARDAL FLEXFUGE** **(in damp rooms, the compound must be sealed before the ceramic is laid)**
C Textile covers	**BOSTIK POWER TEX** Min. toothing B1 (ensure that the rear side of the cover is sufficiently moist. If necessary, use larger toothing). Tufted floor covers should in principle have B 2 toothing

Mapei

Roth ClimaComfort System on existing subsurface

Subsurface	Screed	Tiles	Wooden floorboards/panels
1. Preparing the sub-surface (following check)	Sand/vacuum	Sand/vacuum	Sand/vacuum
2. Priming the subsurface	**Primer G (for B and C)** **Ecoprim R (for A and D)**	**Mapeprim SP (for B and C)** **Primer MF (for A and D)**	**Mapeprim SP (for B and C)** **Primer MF (for A and D)**
3. Post-treatment	—	**Sand/vacuum**	**Sand/vacuum**
4. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**
5. ClimaComfort System sealing compound and primer	**Ultraplan maxi** At least 3 mm above the upper edge of the pipe	**Ultraplan maxi** At least 3 mm above the upper edge of the pipe	**Ultraplan maxi** At least 3 mm above the upper edge of the pipe
Laying the floor covers following functional heating/heating to make the floor ready for cover laying:			
A Parquet (suitable for underfloor heating)	Adhesive: **Ultrabond 990 1K**	Adhesive: **Ultrabond 990 1K**	Adhesive: **Ultrabond 990 1K**
B Ceramic covers	Adhesive: **Keraquick** Joint mortar: **Ultracolor**	Adhesive: **Keraquick** Joint mortar: **Ultracolor**	Adhesive: **Keraquick** Joint mortar: **Ultracolor**
C Natural stone	Adhesive: **Mapelstone 1** Joint mortar: **Ultracolor**	Adhesive: **Mapelstone 1** Joint mortar: **Ultracolor**	Adhesive: **Mapelstone 1** Joint mortar: **Ultracolor**
D Textile/plastic covers (suitable for underfloor heating)	Adhesive: **Ultrabond Eco V4 SP**	Adhesive: **Ultrabond Eco V4 SP**	Adhesive: **Ultrabond Eco V4 SP**

PCI

Roth ClimaComfort System on existing subsurface

Subsurface	Screed	Tiles	Wooden floorboards/panels
1. Preparing the sub-surface (following check)	Sand/vacuum	Sand/vacuum	Sand/vacuum
2. Priming the subsurface	**PCI-Gisogrund (for B and C)** **Special precoat VG2 (for A and D)**	**PCI surface primer 404 (for B and C)** **Special precoat VG2 (for A and D)**	**PCI surface primer 404 (for B and C)** **Special precoat for VG2 (for A and D)**
3. Post-treatment	—	—	—
4. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**
5. ClimaComfort System sealing compound and primer	**PCI-Periplan-Extra (for B and C)** **Wooden floor filler HSP 34 (for A and D)**	**PCI-Periplan-Extra (for B and C)** **Wooden floor filler HSP 34 (for A and D)**	**PCI-Periplan-Extra (for B and C)** **Wooden floor filler HSP 34 (for A and D)**
Laying the floor covers following functional heating/heating to make the floor ready for cover laying:			
A Parquet (suitable for underfloor heating)	Adhesive: **Powder parquet adhesive PAR 362** **1K-PU parquet adhesive PAR 364**	Adhesive: **Powder parquet adhesive PAR 362** **1K-PU parquet adhesive PAR 364**	Adhesive: **Powder parquet adhesive PAR 362** **1K-PU parquet adhesive PAR 364**
B Ceramic covers	Adhesive: **PCI Flex mortar/Nanolight** Joint mortar: **PCI Flexfuge**	Adhesive: **PCI Flex mortar/Nanolight** Joint mortar: **PCI Flexfuge**	Adhesive: **PCI Nanolight** Joint mortar: **PCI Flexfuge**
C Natural stone	Adhesive: **PCI Carraflex** Joint mortar: **PCI Carrafug**	Adhesive: **PCI Carraflex** Joint mortar: **PCI Carrafug**	Adhesive: **PCI Carraflex** Joint mortar: **PCI Carrafug**
D Textile/plastic covers (suitable for underfloor heating)	Adhesive: **Textile cover adhesive TKL 315**	Adhesive: **Textile cover adhesive TKL 315**	Adhesive: **Textile cover adhesive TKL 315**

Henkel

Roth ClimaComfort System on existing subsurface

Subsurface	Screed	Tiles	Wooden floorboards/panels
1. Preparing the sub-surface (following check)	Sand/vacuum	**Thomsit PRO 40**	Sand/vacuum
2. Priming the subsurface	**Ceretec CT (for B and C)** **Thomsit R 777 (for A and D)**	**Cereflor CF 41 (for B and C)** **Thomsit R 755/Epoxi-Priming (for A and D)**	**Cereplan CT 17 (for B)** **Thomsit R 777 (for A and D)**
3. Post-treatment	—	**Sand/vacuum**	—
4. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**
5. ClimaComfort System sealing compound and primer	**Ceresit CN 73 (for B and C)** **Thomsit SL 85/DE 95 (for A and D)**	**Cereplan CN 73 (for B and C)** **Thomsit SL 85/DE 95 (for A and D)**	**Ceresit CN 73 (for B and C)** **Thomsit SL 85 (for A and D)**
Laying the floor covers following functional heating/heating to make the floor ready for cover laying:			
A Parquet (suitable for underfloor heating)	Adhesive: **Thomsit P 618/P 625**	Adhesive: **Thomsit P 618/P 626**	Adhesive: **Thomsit P 618/P 627**
B Ceramic covers	Adhesive: **Ceramit CM 18/CM 12 + Ceroc CC 83** Joint mortar: **Cerement CE 37**	Adhesive: **Ceramit CM 18/CM 12 + Ceroc CC 83** Joint mortar: **Cerement CE 37**	Adhesive: **Ceramit CM 18/CM 12 + Ceroc CC 83** Joint mortar: **Cerement CE 37**
C Natural stone	Adhesive: **Ceramit CM 15 + Ceroc CC 83** Joint mortar: **(adapted to cover)**	Adhesive: **Ceramit CM 15 + Ceroc CC 83** Joint mortar: **(adapted to cover)**	Adhesive: **Manufacturers' instructions** Joint mortar: **Manufacturers' instructions**
D Textile/plastic covers (suitable for underfloor heating)	Adhesive: **Thomsit T 410/TK 199**	Adhesive: **Thomsit T 410/TK 199**	Adhesive: **Thomsit T 410/TK 199**

Ardex

Roth ClimaComfort System on existing subsurface

Subsurface	Screed	Tiles	Wooden floorboards/panels
1. Preparing the sub-surface (following check)	Sand/vacuum	Sand/vacuum	
2. Priming the subsurface	**Ardex P 51 (for A to D)**	**2xArdex EP 2000 (for A to D)**	
3. Post-treatment	—	**Sand/vacuum**	
4. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	
5. ClimaComfort System sealing compound and primer	**Ardex FA 20 (for A to D)**	**Ardex FA 20 (for A to D)**	
Laying floor covers following functional heating/heating to make the floor ready for cover laying:			
A Parquet (suitable for underfloor heating)	Adhesive: **Ardex P 410**	Adhesive: **Ardex P 410**	
B Ceramic covers	Adhesive: **Ardex FB 9** Joint mortar: **Ardex BS Flex**	Adhesive: **Ardex FB 9** Joint mortar: **Ardex BS Flex**	
C Natural stone	Adhesive: **Ardex S 16 + Ardex E 90** Joint mortar: **Ardex MG**	Adhesive: **Ardex S 16 + Ardex E 90** Joint mortar: **Ardex MG**	
D Textile/plastic covers (suitable for underfloor heating)	Adhesive: **Ardex Premium U 2200**	Adhesive: **Ardex Premium U 2200**	

Glass

Roth ClimaComfort System on existing subsurface

Subsurface	Screed	Tiles	Wooden floorboards/panels
1. Preparing the sub-surface (following check)	In conformance with the BEB work and information sheets	Sand/vacuum	
2. Priming the subsurface	**Glasconal Primer**	**Glascopox Universal resin**	
3. Post-treatment	—	**Sand/vacuum**	
4. Laying the ClimaComfort System	**Laying the ClimaComfort System**	**Laying the ClimaComfort System**	
5. ClimaComfort-System sealing compound and primer	**Glasconal NSM** At least 3 mm above the upper edge of the pipe	**Glasconal NSM** At least 3 mm above the upper edge of the pipe	
Laying floor covers following functional heating/heating to make the floor ready for cover laying:			

Guarantee

Terms of guarantee

For the Roth ClimaComfort System, the provisions and conditions of guarantee apply in accordance with the certificate of warranty supplied with the products.

CERTIFICATE OF GUARANTEE

Roth Radiant Heating and Cooling Systems
Roth Pipe Installation Systems

1. Within a 10 years following installation, although no longer than 10 1/2 years following delivery of the system components, we will provide, in accordance with our preference, either free-of-charge product replacement or repair and damage replacement in the event that damage appears in the system components which we have supplied which were caused by faults in materials or production.
   Excluded from this are mechanical moving parts and products as well as electrical and electrically-powered parts and products for which we have provided the guarantee services in the event of faults in materials or production listed above within a time period of 12 months following installation.

2. Prerequisites for this guarantee are:

a. exclusive use and installation of all system components belonging to the respective Roth Radiant Heating System/Pipe Installation System,
b. documented adherence to the planning, installation and operating instructions respectively valid at the time of the installation,
c. adherence to the standards and regulations valid for this work type and for the relevant adjacent work types in connection with the respective Roth Radiant Heating System/Roth Pipe Installation System,
d. that the installation company and the companies carrying out the construction/finishing work types are respectively recognised and authorised specialist companies and that these companies have verified their confirmations with names and signatures on this certification document,
e. that a completely filled out copy of this guarantee certificate is sent back to us without delay,
f. that damages are immediately reported to us with simultaneous forwarding of the guarantee certificate,
g. that claims are made within the guarantee period.

We are insured against claims made in this agreement under an extended company and product liability insurance policy with a coverage amount of
5.000,000 €uros per occurrence
for personal and property injuries.

The stipulations contained in consumer protection laws are unaffected by this guarantee.
The preceding guarantee bond affects the following:

Object of construction: _____

Building contractor: _____

The following have been installed:

Roth Industrial floor heating system ☐ Roth Sport and oscillating floor heating system ☐ Roth Original stapler system ☐
Roth Open area radiant heating system ☐

Roth Pipe installation systems:

Roth Knob panel system ☐ Roth Wall heating system ☐ Roth Radiator connection system ☐
Roth Dry screed system ☐ Roth Heating and cooling system ☐ Roth Potable water system ☐

The system components belonging to the respective Roth Radiant heating system and/or the respective Roth Pipe installation system were delivered and installed completely on the respective date of installation.

Radiant heating system: Area laid _____ m²
Radiator connection system: Number of radiator connections _____ pieces
Potable water system: Number of borrow area connections _____ pieces

Specialist heating company: _____
Signature Stamp Date of installation

Construction/ finishing work types: _____
Signature Stamp Date of completion

_____
Signature Stamp Date of completion

Commissioning: _____
Signature Stamp Date of the commissioning

Roth

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Mat. no.: B We reserve the right to make technical modifications

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