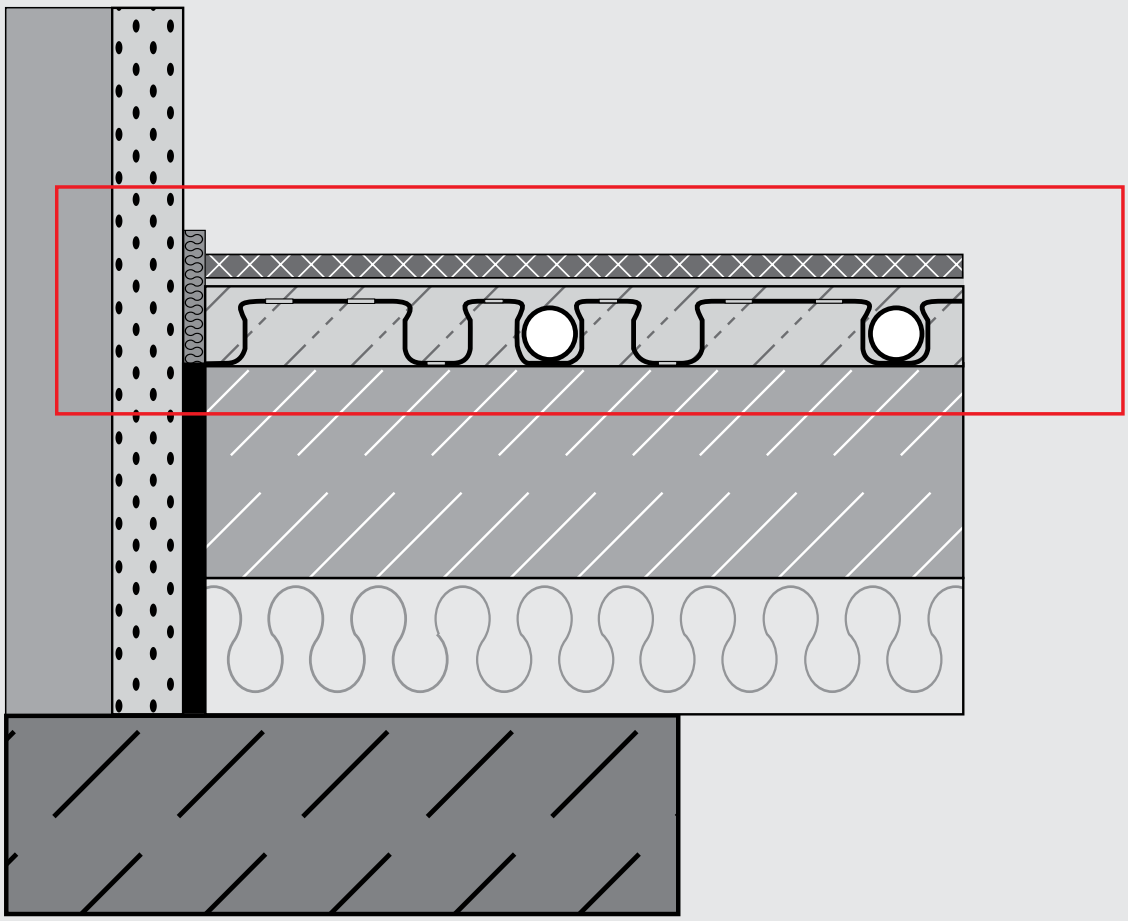
CLIMACOMFORT COMPACT SYSTEM

TECHNICAL INFORMATION AND
ASSEMBLY INSTRUCTIONS



ECO ENERGY AND SANITARY SYSTEMS

Contents

System description
- System benefits . . . 3
- Applications and general information . . . 3
- Structure of the Roth ClimaComfort® Compact System . . . 4
- System components . . . 5

Set-up and configuration
- Insulation requirements for existing buildings . . . 9

Performance data
- Roth ClimaComfort® Compact System heating curve, pipe pitch 75 mm . . . 10
- Roth ClimaComfort® Compact System heating curve, pipe pitch 150 mm . . . 10
- System heat flow density . . . 11
- Roth ClimaComfort® Compact System heat flow density, floor applications . . . 11
- Thermal resistance of the floor covering $R_{\lambda B}$ = 0,00 m² K/W . . . 13
- Thermal resistance of the floor covering $R_{\lambda B}$ = 0,05 m² K/W . . . 13
- Thermal resistance of the floor covering $R_{\lambda B}$ = 0,10 m² K/W . . . 14
- Thermal resistance of the floor covering $R_{\lambda B}$ = 0,15 m² K/W . . . 14
- Roth ClimaComfort® Compact System cold flow density, floor applications . . . 15

Installation requirements
- Subsurfaces . . . 16
- Tools . . . 17

Assembly instructions . . . 18

Commissioning
- Pressure test . . . 20
- Functional heating . . . 20
- Curing . . . 20
- Floor coverings . . . 20

Processing instructions for the filling and sealing compound
- Henkel . . . 21
- Bostik . . . 22
- PCI . . . 24
- Knauf . . . 25
- Sopro . . . 26
- Glass . . . 27
- Kiesel . . . 28
- Ardex . . . 29
- botament . . . 30
- maxit . . . 32

Leak test protocol . . . 33
Functional heating/cooling protocol . . . 36
Standards and directives . . . 37
Guarantee . . . 38

System description

System benefits

The Roth ClimaComfort® Compact System for heating and cooling via floors, walls, and ceilings in both modernisation and new-build projects is noted for its very slim size (just 17 mm) and the excellent responsiveness this helps deliver.

DIN CERTCO
Gesellschaft für Konformitätsbewertung mbH

DIN

CERTIFICATE

This is to confirm that the company known as

Roth Werke GmbH
Am Seerain
35232 Dautphetal
GERMANY

as far as the product below is concerned

Water based surface embedded heating and cooling systems in floors, ceilings, and walls

namely the

Roth ClimaComfort Compact System

has complied with

E DIN EN 1264-02:2009-01
E DIN EN 1264-04:2009-11
Certification programme for water based surface embedded heating and cooling systems (version: 2009-11)

and that it has been awarded the right to use the mark below

DIN Geprüft

in conjunction with the registration number stated below.

Registration number: 7F221-F

This is valid until 2016-02-28.

See the notes for further details.

DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Alboinstraße 56, 12103 Berlin

2011-02-02
Dipl.-Ing. Peter Suxdorf
- Geschäftsführer -

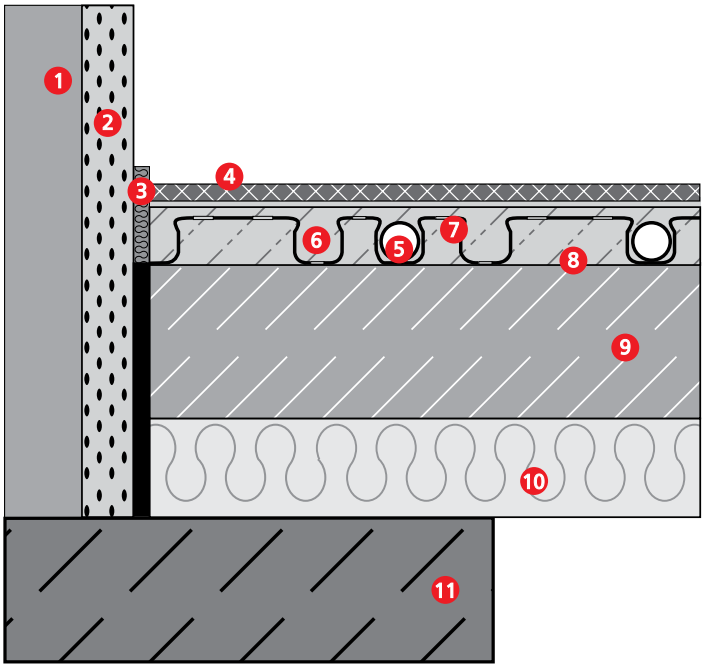
Applications and general information

The system description mainly focuses on planning and implementation work for the Roth ClimaComfort® Compact System. This is embedded in a thin layer of mineral-based filling and sealing compound, whose thickness does not comply with the minimum thickness under DIN 18560 – Floor screeds in building construction. In order to avoid any confusion with conventional heating screed, the term **'filling and sealing compound'** will be used in the rest of the document.

This system is mainly used in renovation projects. It reflects the state of the art. Having said this, those carrying out a project must check whether the filling and sealing compound selected is suitable for the relevant application based on the general conditions at the site in question.

System description

Structure of the Roth ClimaComfort® Compact System

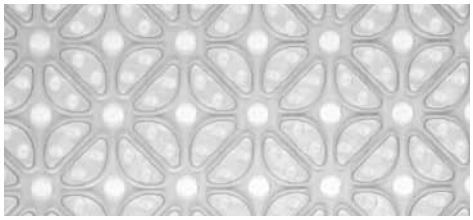


1. Wall
2. Plaster
3. Roth edge insulating strips
4. Roth ClimaComfort S5 System Pipe 11 mm
5. Floor covering
6. Filling and sealing compound
7. Roth ClimaComfort® Compact System panel 14 mm, 17 mm
8. Primer
9. Existing insulation
10. Existing subsurface (screed, etc.)
11. Supporting subsurface

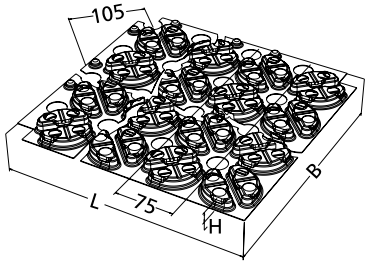
System components

Roth ClimaComfort® Compact System panel

High-strength transparent system panel with 14 mm installation height, of semi-crystalline material. The special panel structure with undercutting supports standardised and secure fixing of pipes. 11 x 1,30 mm ClimaComfort S5 System Pipes are installed in a coiled or meandering pattern as required in an installation grid of 75 mm. Diagonal installation with spacing of 105 mm is possible. The ClimaComfort Compact System panels overlap by 22 mm on both sides to facilitate interconnection of the panels and have an adhesive back to ensure all-over adhesion of the panels as well as secure fixing to the subsurface. Filling holes and vent holes used to insert the filling and sealing compound ensure a secure and stable connection with the base.



Roth ClimaComfort® Compact System panel



Material no.	1115007104
Description	CC Compact System panel
Dimensions L x W x H	1072 x 772 x 14 mm
Height, knob H_N	14
Installation grid	75 mm
Effective installation area	0,785 m^2
Material	PET
Packing unit	3,92 m^2/box
Area of application	Used for renovation projects where very low installation heights and low weights per unit area are required. Used on firm, supporting subsurfaces with thin-layered smoothing agents.
Structure	Composite structure with supporting subsurface
Overlap	22 mm
Building material class	B2
Installation spacing VA	7,5; 15; 22,5; diagonal 10,5 cm

System description

Roth ClimaComfort S5 System Pipe

5-layer safety pipe in accordance with DIN EN ISO 22391, with an oxygen barrier layer according to DIN 4726, protected from increased mechanical demands by a PE coating. Permanent bonding of the pipe layers using S5 coex Technology. The ClimaComfort S5 System Pipe is resistant to stress cracking and stable against thermal ageing.

- Dimensions: 11 x 1,30 mm
- Maximum temperature: 70 °C, over short term to 100 °C
- Maximum pressure: 6 bar
- Permissible minimum bending radius: 3 x da
- Maximum pipe length/heating circuit: 60 m
- Packing unit: 120 m/240 m

Roth ClimaComfort S5 System Pipe

Filling and sealing compound

Ready-made mixture as a special, self-spreading, hydraulically curing compound of high solidity for filling Roth ClimaComfort® Compact System panel and creating a load-bearing layer which, combined with the subsurface, can accommodate floor coverings. Use after appropriate pretreatment and in accordance with the manufacturer's instructions on concrete, cement screeds, calcium-sulphate-bound screeds, or ceramic coverings. Base layer for any floor coverings based on special cement, mineral aggregates (special medium-grain grading curve – synthetic-resin-coated), for manual and mechanical processing.

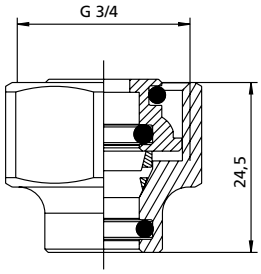
- Application: approx. 25 kg/m² (system coverage 3 mm)
- Delivery form: ready-made mixture in a bag, depending on the manufacturer
- Processing time: approx. 30 min (20 °C/65% relative humidity)
- Min. processing temperature: 5 °C at floor level
- Can be walked on: after approx. 3-4 hours
- Functional heating: in accordance with the manufacturer's instructions
- Ready to cover: after approx. 2 days - needs to be tested by floor installer.
- The latest manufacturer's instructions must be followed without exception.

To be purchased from the manufacturers listed below:
Bostik
Glass Baustoffwerke AG
ARDEX
Henkel/Thomsit
PCI
Knauf
Kiesel
Sopro
maxit
botament

Roth ClimaComfort® Compact screw fitting

For connecting the 11 x 1,30 mm Roth ClimaComfort S5 System Pipe to the Roth manifold with flow rate indicator.
Consists of: a brass union nut with 3/4"/11 mm internal thread, brass pipe adapter with Euro cone and clamp ring.

- Dimensions: 3/4" internal thread/11 mm
- Spanner size: SW 30 mm
- Packing unit: 1 unit



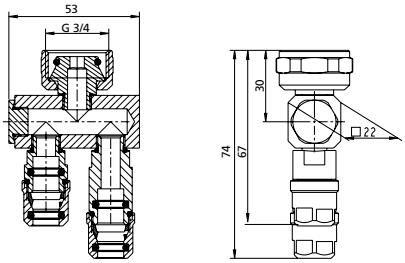
Roth ClimaComfort® Compact screw fitting

System description

Roth ClimaComfort® Compact T Connection

For connecting 2 heating circuits of the same length made from 11 x 1,30 mm Roth ClimaComfort S5 System Pipes to the heating circuit pipe coupling of the Roth manifold with flow rate indicator.

Consists of:
- Dimensions: 3/4" int. thr./2 x 11 mm
- Packing unit: 1 unit

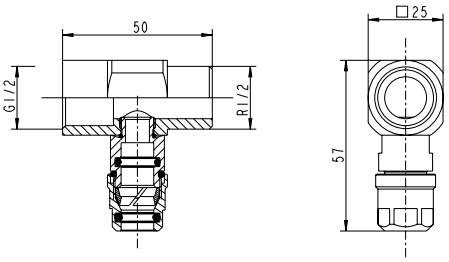


Roth ClimaComfort® Compact T Connection

Roth ClimaComfort® Compact single submanifold

For connecting heating circuits made from 11 x 1,30 mm Roth ClimaComfort S5 System Pipes to a controlled thermal heat supply as a single manifold or for combining several units where the circuits are the same length. Consists of a brass profile with connection for both 1/2" outer thread and 1/2" inner thread, 1 heating circuit pipe coupling for 11 x 1,30 mm Roth ClimaComfort S5 System Pipes with screw connection.

- Connection for both 1/2" inner thread and 1/2" outer thread
- Packing unit: 1 unit

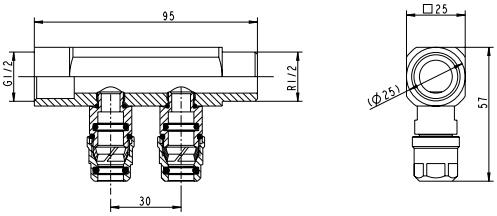


Roth ClimaComfort® Compact single submanifold

Roth ClimaComfort® Compact double submanifold

For connecting heating circuits of the same length made from 11 x 1,30 mm Roth ClimaComfort S5 System Pipes to a controlled thermal heat supply as a single manifold or for combining pipes. Consists of a brass profile with connection for both 1/2" outer thread and 1/2" inner thread, 2 heating circuit pipe couplings for 11 x 1,30 mm Roth ClimaComfort S5 System Pipes with screw connection.

- Connection for both 1/2" inner thread/1/2" outer thread
- Packing unit: 1 unit

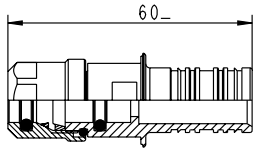


Roth ClimaComfort® Compact double submanifold

Roth ClimaComfort® Compact press fitting

For directly connecting 11 x 1,30 mm Roth ClimaComfort S5 System Pipes to other Roth System Pipes. Consists of a brass double nipple with press contour and screw thread for 11 x 1,30 mm Roth ClimaComfort S5 System Pipe, incl. stainless steel crimping sleeve and screw connection.

- Dimensions: 17 mm/11 mm
- Packing unit: 1 unit
- Dimensions: 20 mm/11 mm
- Packing unit: 1 unit



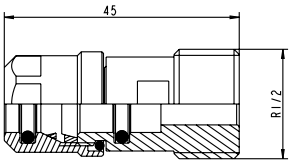
Roth ClimaComfort® Compact press fitting

System description

Roth ClimaComfort® Compact reducing pipe nipple

Brass reducing component, one-sided 1/2" external thread, for connecting pipes and 11 x 1,30 mm Roth ClimaComfort S5 System Pipes, incl. screw connection.

- Dimensions: 1/2" external thread – 11 mm
- Packing unit: 1 unit

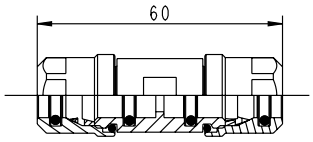


Roth ClimaComfort® Compact reducing pipe nipple

Roth ClimaComfort® Compact coupling

Consists of 1 brass double nipple and 2 screw connections for connecting 11 x 1,30 mm Roth ClimaComfort S5 System Pipes (repair scenarios)

- Dimensions: 11 mm
- Packing unit: 1 unit

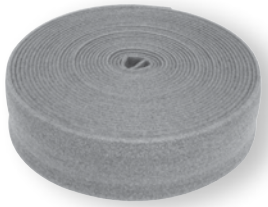


Roth ClimaComfort® Compact coupling

Roth ClimaComfort® Compact edge insulating strips

For separating the filling and sealing compound from adjacent rising components, 5 mm thick special foam plastic, 50 mm high with welded PE film, with adhesive strips for fixing to the subsurface.

- Dimensions: 5 x 50 mm
- Packing unit: 25 m



Roth ClimaComfort® Compact edge insulating strips 80 mm

Roth ClimaComfort® Compact expansion joint profile

For the secure separation of field areas and the formation of permanently flexible joints consisting of a closed-cell PE core with stable PET coating and 90° angled, self-adhesive contact zone, 8 mm wide, 40 mm high, and 1800 mm long.

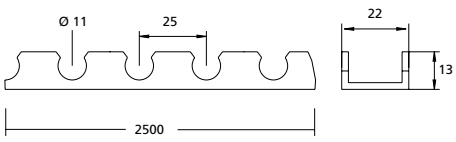
- Packing unit: 1 unit

Roth ClimaComfort® Compact expansion joint profile

Roth pipefix 11

U rail with 25 mm perforated grid for fixing pipes on uneven surfaces (wall and ceiling), adapted to 11 mm ClimaComfort S5 System Pipes with predefined separation points. The base is self-adhesive.

- Dimensions: 4000 x 30 x 15,50 mm
- Packing unit: 1 unit



Roth pipefix 11

The calculations for the Roth ClimaComfort® Compact System are based on the basic characteristic curve under DIN EN 1264, Part 2 and the DIN EN 12831 standard heating load calculation. The system layout is based on the sizes calculated in accordance with DIN EN 1264, taking into account the permitted limit values taken from the system performance charts.

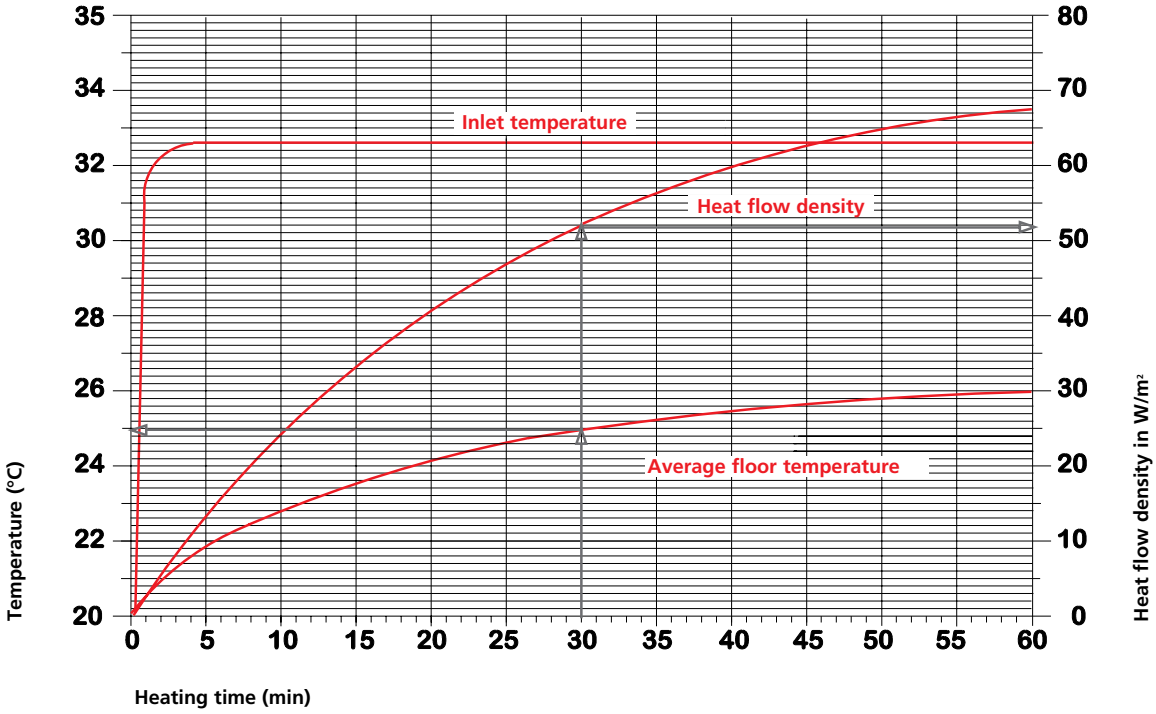
Insulation requirements for existing buildings

Ceilings separating residential apartments:
The insulation requirements under EnEV do not apply to ceilings separating residential apartments. Checks should be made to ensure compliance with the insulation standard for ceilings separating residential apartments under DIN EN 1264 of R_{λ},ins ≥0,75 m^2 K/W.
DIN EN 1264 Part 4 can only be used as a guide, however, since its requirements relate to standard systems.

Ceilings adjacent to unheated rooms or the ground:
The requirements under the currently applicable version of EnEV must be observed in all cases. As such, the following stipulations under the currently applicable version of EnEV 2009 need to be observed:
If the surface area to be renovated is less than 10% of the surface area of the entire building, there are no insulation requirements (EnEV, Paragraph 9, Section 3, Point 3).
For larger area sections, the insulation requirements under EnEV Appendix 3, Section 5, Row d apply.
During installation or when renewing the entire floor structure (insulation, screed, floor covering, etc.) for floor heating purposes, a heat transfer coefficient of 0,50 W/m^2 K for the overall building component should be maintained.
It is important to check that sufficient insulation, as envisaged under EnEV, has been provided in the existing floor structure.
If additional insulation measures are required, but the thickness of the insulation layer is restricted for technical reasons, the requirements under EnEV will be deemed to have been satisfied providing the thickest possible layer of insulation is installed based on the recognised state of the art (value for measuring thermal conductivity is R_{λ}= 0,040 W/kW).
With the cellar ceiling, it is also necessary to check whether an insulation layer of at least 65 mm WLG 040 should be attached to the lower side. 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 Paragraphs 24 and 25 for ceilings which are adjacent to the ground and on which it is not possible to apply a layer of insulation retrospectively, since this is not feasible in accordance with EnEG Paragraph 5, Section 1.

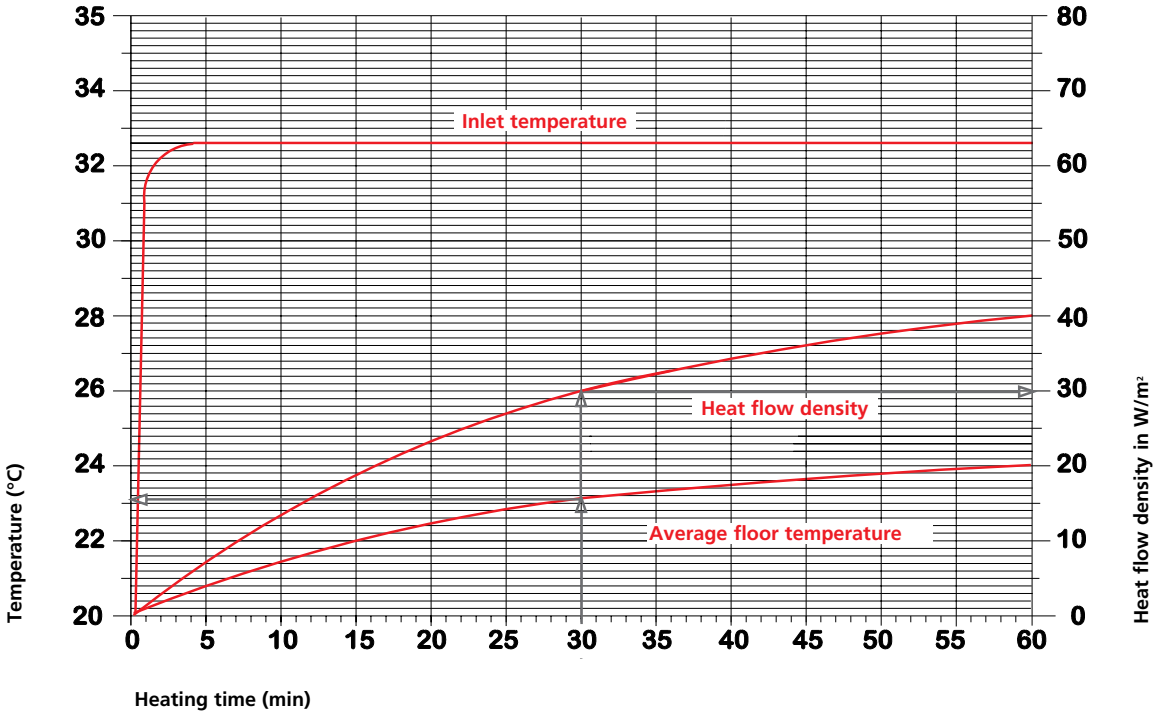
Roth ClimaComfort® Compact System heating curve, pipe pitch 75 mm

Floor structure: 17 mm, filling and sealing compound + tiles ($R_{\lambda B}$ = 0,01 m² K/W), change in inlet temperature 20 °C to 32,7 °C (constant), room temperature 20 °C



Roth ClimaComfort® Compact System heating curve, pipe pitch 150 mm

Floor structure: 17 mm, filling and sealing compound + tiles ($R_{\lambda B}$ = 0,01 m² K/W), change in inlet temperature 20 °C to 32,7 °C (constant), room temperature 20 °C

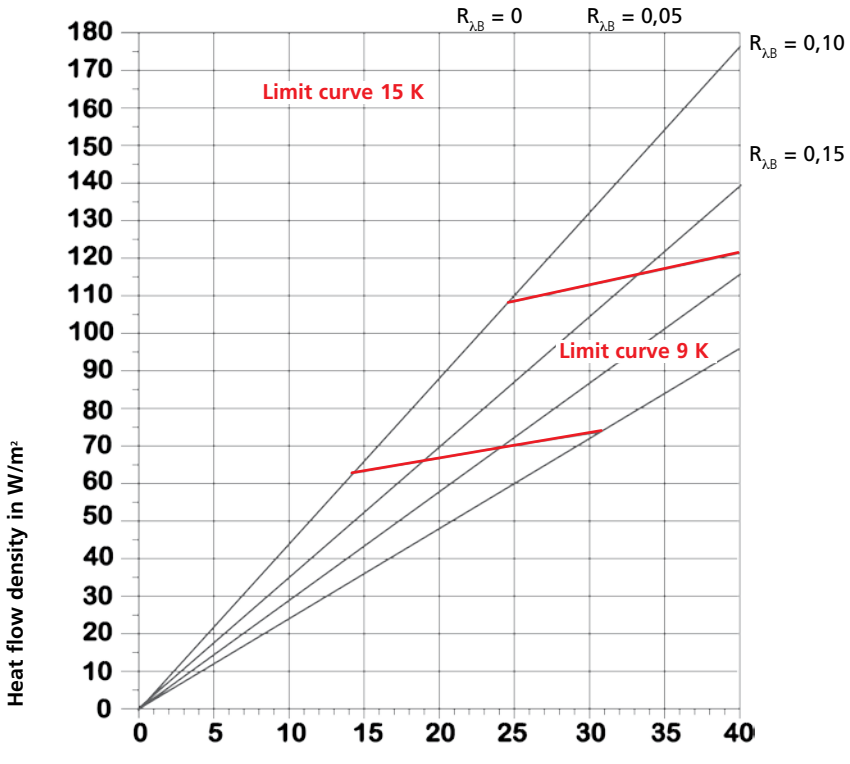


System heat flow density

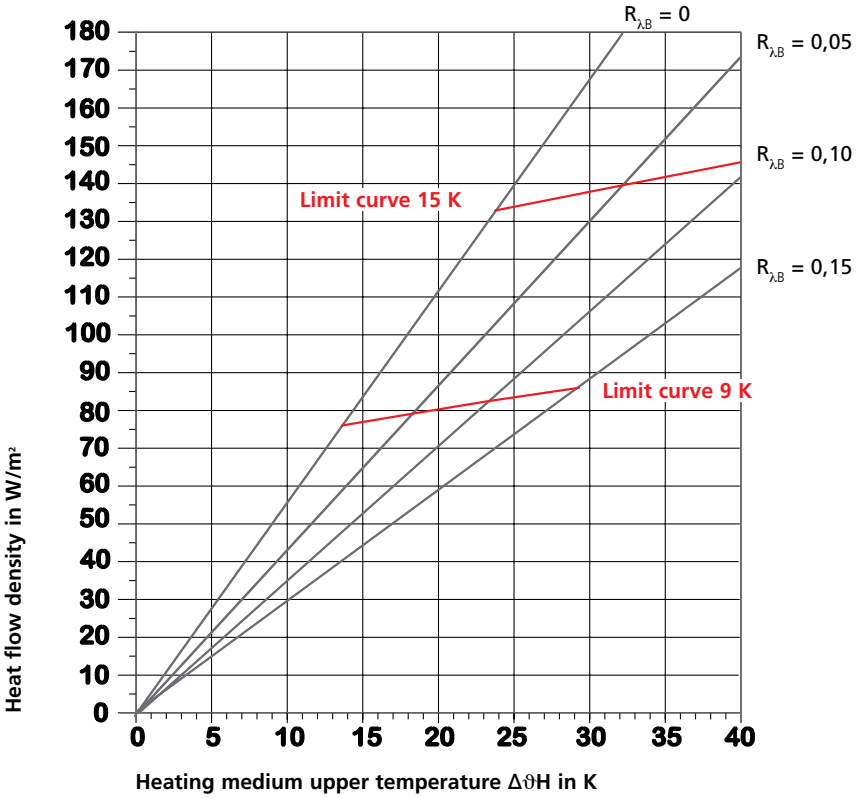
	ClimaComfort S5 System Pipe 11 x 1,30 mm, filling and sealing compound 17 mm = 1,20 W/mK		Installation zone condition tFmax-ti = 9 K		Boundary zone condition tFmax-ti = 15 K	
	Thermal resistance Floor covering	System characteristic curve	System heat flow density limit	System heating medium upper temperature limit	System heat flow density limit	System heating medium upper temperature limit
	$R_{\lambda B}$ (m²K/W)	q (KH*Δt)	q (W/m²)	ΔϑH (K)	q (W/m²)	ΔϑH (K)
Installation spacing 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
Installation spacing 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
Installation spacing 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® Compact System heat flow density, floor applications

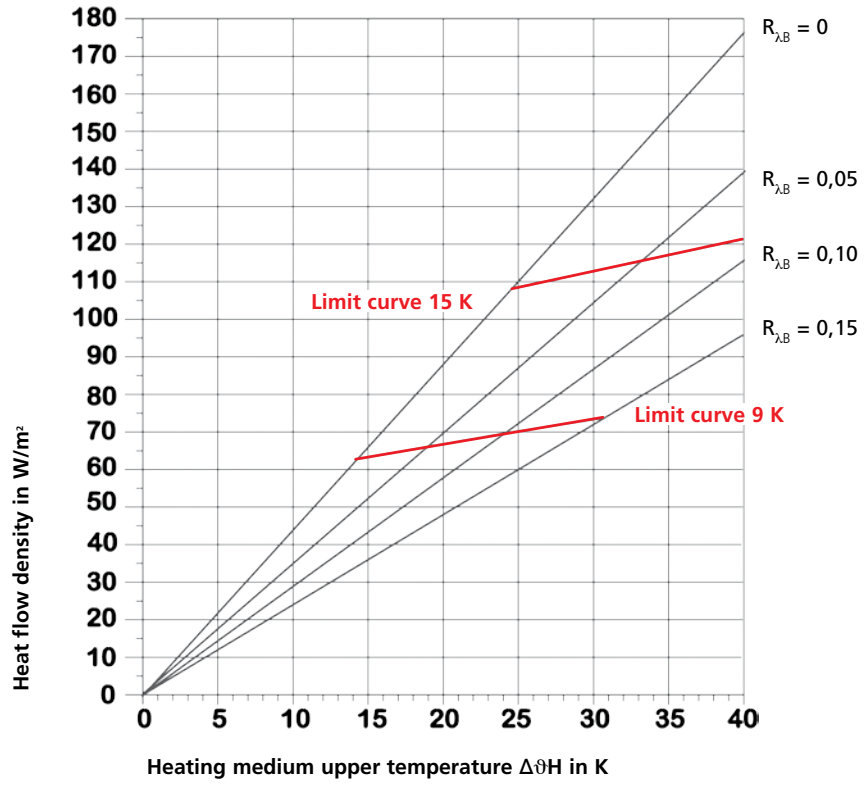
Heating, pipe pitch 75 mm, size 17 mm, filling and sealing compound



Heating, pipe pitch 150 mm, size 17 mm, filling and sealing compound



Heating, pipe pitch 225 mm, size 17 mm, filling and sealing compound



Thermal resistance of the floor covering $R_{\lambda B}$ = 0,00 m² K/W

Spread 5 K, max. pressure loss/HKR 250 mbar, filling and sealing compound, size 17 mm = 25 kg/m² - λ - 1,2 W/mK

Thermal resistance of the floor covering $R_{\lambda B}$ = 0,00 m² K/W			Heating medium temp. ϑH 27,5 °C tv 30 tr 25			Heating medium temp. ϑH 30 °C tv 32,5 tr 27,5			Heating medium temp. ϑH 32,5 °C tv 35 tr 30			Heating medium temp. ϑH 35 °C tv 37,5 tr 32,5			Heating medium temp. ϑH 37,5 °C tv 40 tr 35		
	Installation spacing	System pipe requirement ClimaComfort S5 11 x 1,3 mm	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area
	VA (cm)	**L** (m/m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)
Inside temperature 15 °C	7,5 15,0 22,5	13,30 6,40 4,40	94 70 55	23,5 21,5 20,2	4,06 6,36 8,52	113 85 66	25,0 22,7 21,2	3,62 5,67 7,59	131 99 77	26,5 23,9 22,1	3,28 5,14 6,88	150 113 88	28,0 25,0 23,0	3,01 4,72 6,32	169 127 99	29,5 26,2 23,9	2,80 4,38 5,86
Inside temperature 18 °C	7,5 15,0 22,5	13,30 6,40 4,40	71 54 42	24,6 23,1 22,1	4,84 7,58 10,15	90 68 53	26,2 24,3 23,0	4,17 6,53 8,75	109 82 64	27,7 25,5 24,0	3,70 5,79 7,76	128 96 75	29,2 26,7 24,9	3,34 5,23 7,01	146 110 86	30,7 27,8 25,8	3,06 4,79 6,42
Inside temperature 20 °C	7,5 15,0 22,5	13,30 6,40 4,40	56 42 33	25,3 24,1 23,3	5,63 8,81 11,80	75 56 44	26,9 25,3 24,3	4,68 7,34 9,82	94 70 55	28,5 26,5 25,2	4,06 6,37 8,52	113 85 66	30,0 27,7 26,2	3,62 5,67 7,59	131 99 77	31,5 28,9 27,1	3,28 5,14 6,88
Inside temperature 22 °C	7,5 15,0 22,5	13,30 6,40 4,40	41 31 24	26,0 25,1 24,5	6,85 10,73 14,37	60 45 35	27,7 26,4 25,5	5,40 8,46 11,32	79 59 46	29,2 27,6 26,5	4,54 7,11 9,52	98 73 57	30,8 28,8 27,4	3,96 6,21 8,31	116 87 68	32,3 30,0 28,4	3,54 5,55 7,43
Inside temperature 24 °C	7,5 15,0 22,5	13,30 6,40 4,40	26 20 15	26,7 26,1 25,6	9,14 14,31 19,16	45 34 26	28,4 27,4 26,7	6,48 10,15 13,60	64 48 38	30,0 28,6 27,7	5,20 8,14 10,89	83 62 49	31,6 29,8 28,7	4,41 6,90 9,25	101 76 60	33,1 31,0 29,6	3,87 6,06 8,12

Thermal resistance of the floor covering $R_{\lambda B}$ = 0,05 m² K/W

Spread 5 K, max. pressure loss/HKR 250 mbar, filling and sealing compound, size 17 mm = 25 kg/m² - λ - 1,2 W/mK

Thermal resistance of the floor covering $R_{\lambda B}$ = 0,05 m² K/W			Heating medium temp. ϑH 27,5 °C tv 30 tr 25			Heating medium temp. ϑH 30 °C tv 32,5 tr 27,5			Heating medium temp. ϑH 32,5 °C tv 35 tr 30			Heating medium temp. ϑH 35 °C tv 37,5 tr 32,5			Heating medium temp. ϑH 37,5 °C tv 40 tr 35		
	Installation spacing	System pipe requirement ClimaComfort S5 11 x 1,3 mm	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area
	VA (cm)	**L** (m/m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)
Inside temperature 15 °C	7,5 15,0 22,5	13,30 6,40 4,40	69 54 43	21,4 20,1 19,2	4,96 7,53 9,93	82 65 52	22,6 21,1 20,0	4,41 6,71 8,84	96 76 61	23,7 22,0 20,7	4,00 6,08 8,01	110 86 69	24,8 22,9 21,5	3,67 5,59 7,36	124 97 78	25,9 23,8 22,2	3,41 5,18 6,83
Inside temperature 18 °C	7,5 15,0 22,5	13,30 6,40 4,40	52 41 33	23,0 22,0 21,3	5,90 8,97 11,82	66 52 42	24,2 23,0 22,1	5,09 7,73 10,19	80 63 50	25,3 23,9 22,8	4,51 6,86 9,03	93 74 59	26,5 24,8 23,6	4,07 6,20 8,16	107 84 68	27,6 25,7 24,3	3,73 5,68 7,48
Inside temperature 20 °C	7,5 15,0 22,5	13,30 6,40 4,40	41 32 26	24,0 23,2 22,6	6,86 10,43 13,74	55 43 35	25,2 24,2 23,4	5,71 8,68 11,44	69 54 43	26,4 25,1 24,2	4,96 7,53 9,93	82 65 52	27,6 26,1 25,0	4,41 6,71 8,84	96 76 61	28,7 27,0 25,7	4,00 6,08 8,01
Inside temperature 22 °C	7,5 15,0 22,5	13,30 6,40 4,40	30 24 19	25,0 24,4 24,0	8,36 12,70 16,74	44 35 28	26,3 25,4 24,8	6,59 10,01 13,19	58 45 36	27,5 26,4 25,6	5,54 8,42 11,09	71 56 45	28,6 27,3 26,4	4,83 7,35 9,68	85 67 54	29,8 28,3 27,1	4,32 6,57 8,66
Inside temperature 24 °C	7,5 15,0 22,5	13,30 6,40 4,40	19 15 12	26,0 25,6 25,3	11,14 16,94 22,32	33 26 21	27,3 26,6 26,2	7,91 12,02 15,84	47 37 30	28,5 27,6 27,0	6,34 9,63 12,69	60 48 38	29,7 28,6 27,8	5,38 8,17 10,77	74 58 47	30,9 29,5 28,5	4,72 7,17 9,45

Thermal resistance of the floor covering $R_{\lambda,B}$ = 0,10 m² K/W

Spread 5 K, max. pressure loss/HKR 250 mbar, filling and sealing compound, size 17 mm = 25 kg/m² - λ - 1,2 W/mK

Thermal resistance of the floor covering $R_{\lambda,B}$ = 0,10 m² K/W			Heating medium temp. ϑH 27,5 °C	tv 30	tr 25	Heating medium temp. ϑH 30 °C	tv 32,5	tr 27,5	Heating medium temp. ϑH 32,5 °C	tv 35	tr 30	Heating medium temp. ϑH 35 °C	tv 37,5	tr 32,5	Heating medium temp. ϑH 37,5 °C	tv 40	tr 35
	Installation spacing	System pipe requirement ClimaComfort S5 11 x 1,3 mm	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area
	VA (cm)	**L** (m/m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)
Inside temperature 15 °C	7,5 15,0 22,5	13,30 6,40 4,40	54 44 36	20,2 19,3 18,5	5,77 8,61 11,23	65 53 43	21,1 20,0 19,2	5,13 7,66 10,00	76 61 50	22,0 20,8 19,8	4,65 6,95 9,06	87 70 57	22,9 21,5 20,4	4,27 6,38 8,32	98 79 64	23,8 22,3 21,0	3,96 5,92 7,72
Inside temperature 18 °C	7,5 15,0 22,5	13,30 6,40 4,40	41 33 27	22,0 21,3 20,8	6,87 10,25 13,37	52 42 34	23,0 22,1 21,4	5,92 8,83 11,52	63 51 41	23,9 22,9 22,0	5,25 7,83 10,21	74 60 49	24,8 23,6 22,7	4,74 7,08 9,23	85 68 56	25,7 24,4 23,3	4,34 6,49 8,46
Inside temperature 20 °C	7,5 15,0 22,5	13,30 6,40 4,40	33 26 21	23,2 22,7 22,2	7,98 11,91 15,54	43 35 29	24,2 23,5 22,9	6,65 9,92 10,94	54 44 36	25,2 24,3 23,5	5,77 8,61 11,23	65 53 43	26,1 25,0 24,2	5,13 7,66 10,00	76 61 50	27,0 25,8 24,8	4,65 6,95 9,06
Inside temperature 22 °C	7,5 15,0 22,5	13,30 6,40 4,40	24 19 16	24,4 24,0 23,7	9,72 14,51 18,93	35 28 23	25,4 24,8 24,4	7,66 11,43 14,91	46 37 30	26,4 25,6 25,0	6,44 9,62 12,54	56 46 37	27,3 26,4 25,7	5,62 8,39 10,95	67 54 44	28,3 27,2 26,3	5,03 7,51 9,79
Inside temperature 24 °C	7,5 15,0 22,5	13,30 6,40 4,40	15 12 10	25,6 25,3 25,1	12,96 19,35 25,24	26 21 17	26,6 26,2 25,8	9,20 13,73 17,91	37 30 24	27,6 27,0 26,5	7,37 11,00 14,35	48 39 31	28,6 27,8 27,1	6,25 9,34 12,18	59 47 39	29,5 28,6 27,8	5,49 8,20 10,69

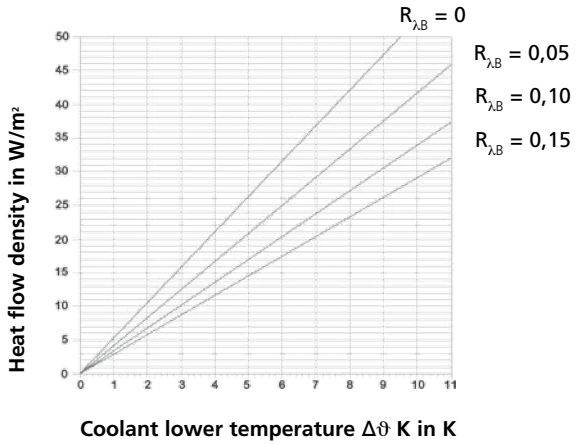
Thermal resistance of the floor covering $R_{\lambda,B}$ = 0,15 m² K/W

Spread 5 K, max. pressure loss/HKR 250 mbar, filling and sealing compound, size 17 mm = 25 kg/m² - λ - 1,2 W/mK

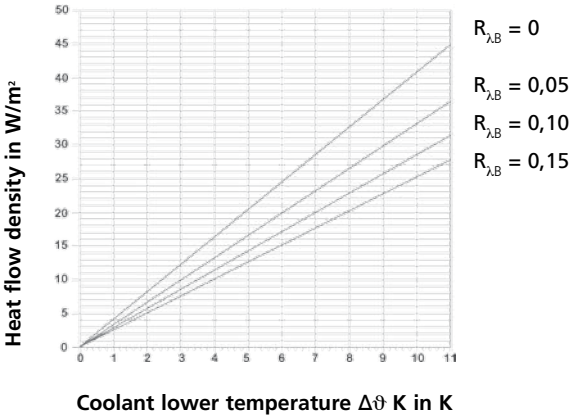
Thermal resistance of the floor covering $R_{\lambda,B}$ = 0,15 m² K/W			Heating medium temp. ϑH 27,5 °C	tv 30	tr 25	Heating medium temp. ϑH 30 °C	tv 32,5	tr 27,5	Heating medium temp. ϑH 32,5 °C	tv 35	tr 30	Heating medium temp. ϑH 35 °C	tv 37,5	tr 32,5	Heating medium temp. ϑH 37,5 °C	tv 40	tr 35
	Installation spacing	System pipe requirement ClimaComfort S5 11 x 1,3 mm	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area	Thermal output max.	Average surface temp.	Max. heating circ. area
	VA (cm)	**L** (m/m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)	**q** (W/m²)	**ϑo** (°C)	**AHKR** (m²)
Inside temperature 15 °C	7,5 15,0 22,5	13,30 6,40 4,40	45 37 30	19,3 18,6 18,1	6,51 9,61 12,44	54 44 37	20,1 19,3 18,6	5,80 8,56 11,08	63 52 43	20,9 19,9 19,1	5,26 7,76 10,05	72 59 49	21,6 20,6 19,7	4,83 7,12 9,23	81 66 55	22,4 21,2 20,2	4,48 6,61 8,56
Inside temperature 18 °C	7,5 15,0 22,5	13,30 6,40 4,40	34 28 23	21,4 20,8 20,4	7,76 11,44 14,82	43 35 29	22,2 21,5 20,9	6,68 9,86 12,77	52 43 35	23,0 22,2 21,5	5,93 8,74 11,32	61 50 41	23,7 22,8 22,0	5,36 7,90 10,23	70 58 47	24,5 23,4 22,6	4,91 7,24 9,38
Inside temperature 20 °C	7,5 15,0 22,5	13,30 6,40 4,40	27 22 18	22,7 22,3 21,9	9,02 13,30 17,22	36 30 24	23,5 23,0 22,5	7,51 11,07 14,34	45 37 30	24,3 23,6 23,1	6,51 9,61 12,44	54 44 37	25,1 24,3 23,6	5,80 8,56 11,08	63 52 43	25,9 24,9 24,1	5,26 7,76 10,05
Inside temperature 22 °C	7,5 15,0 22,5	13,30 6,40 4,40	20 16 13	24,1 23,7 23,4	10,98 16,20 20,98	29 24 19	24,9 24,4 24,0	8,65 12,76 16,53	38 31 26	25,7 25,1 24,6	7,28 10,73 13,90	47 38 32	26,5 25,8 25,2	6,35 9,37 12,14	55 46 38	27,3 26,4 25,7	5,68 8,38 10,85
Inside temperature 24 °C	7,5 15,0 22,5	13,30 6,40 4,40	13 10 9	25,4 25,1 25,0	14,29 21,60 27,98	21 18 15	26,2 25,9 25,6	10,39 15,33 19,85	30 25 21	27,1 26,6 26,1	8,33 12,28 15,91	39 32 27	27,9 27,2 26,7	7,07 10,42 13,50	48 40 33	28,6 27,9 27,3	6,20 9,15 11,85

Roth ClimaComfort® Compact System cold flow density, floor applications

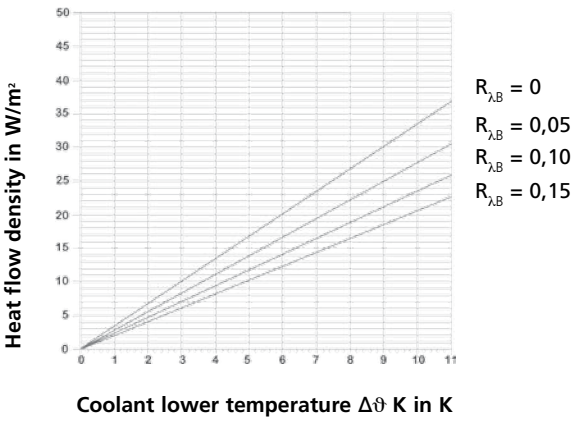
Pipe pitch 75 mm, filling and sealing compound 17 mm, size: Floor covering $R_{\lambda B}$ = 0 to $R_{\lambda B}$ = 0,15 m²K/W



Pipe pitch 150 mm, filling and sealing compound 17 mm, size: Floor covering $R_{\lambda B}$ = 0 to $R_{\lambda B}$ = 0,15 m²K/W



Pipe pitch 225 mm, filling and sealing compound 17 mm, size: Floor covering $R_{\lambda B}$ = 0 to $R_{\lambda B}$ = 0,15 m²K/W



Subsurfaces

The structural requirements and any preparatory measures need to be checked.

Assessing the load-bearing capacity of the subsurface
A specialist in screeds or floor installations should assess the subsurface and decide on the measures needed to prepare the subsurface properly.
The instructions provided by the manufacturer of the building material should be followed for flooring areas with mixed subsurfaces. It may be necessary to arrange a meeting with the relevant specialist consultant on site. Certain assessment criteria need to be borne in mind in any event:

Floating structures do not make suitable subsurfaces (e.g. loosely laid insulation panels)!

Floor heating with the Roth ClimaComfort® Compact System on mineral-based subsurfaces
It is important to ensure the site involved is fully enclosed before starting on any structural work. Any subsequent moisture (including excessive humidity from outside) must be ruled out and a minimum temperature of 10 °C must be observed.
Subsurfaces must be non-yielding, high-tensile, and able to take a load. They must also be free from dirt, contain no separation layers, and be permanently dry. Appropriate mechanical processes, such as sanding, blasting, milling, or suction, should be used to remove any loose matter which might interfere with bonding. This includes things like oil, dust, wax, old coatings, layers of cement or plaster, adhesive residue, or layers of paint. Any cracks should be properly repaired. Any surfaces where rising damp might be a problem should be sealed using suitable products from the relevant manufacturers.

Composite screeds on a cement base or cement screeds on a separation layer must satisfy the requirements under DIN 18560 and rest firmly on the concrete subsurface. The residual moisture of the cement screed must not exceed 2 CM-%.

Floating screeds on a cement base must be at least 45 mm thick and be manufactured in accordance with DIN 18560. The residual moisture of the cement screed must not exceed 2 CM-%. The surface area must not exceed 40 m^2.

The calcium sulphate floating screed (anhydrite floating screed) on a separation layer or a layer of insulation must be at least 35 mm thick and comply with DIN 18560. The residual moisture of the calcium sulphate floating screed must not exceed 0,5 CM-%. The surface must be inspected for separation/sinter layers, and these should be removed using a suitable mechanical process like sanding, blasting, or milling.

The surface should also be sanded down using a 16 grain size, and a powerful industrial vacuum cleaner used to suck up any residue.
Any **concrete/precast concrete components** must be at least 3 months old as per DIN 1045 or their residual moisture must not exceed 3%. Any expansion joints must be incorporated.

Floor heating with the Roth ClimaComfort® Compact System on wooden or dry construction elements and mastic asphalt

It is important to check that **timber floor boards** are stable on the sleepers. Floor boards should be screwed tight if necessary.
Adequate air space should be left when smoothing over entire wooden floor structures.

V 100 E 1 chipboards and OSB panels must be installed as required under DIN 68771 (CEN/TC 112) 'Sub-floors of wood chipboards'.

Structural moisture protection must be arranged on all surfaces at a level that prevents condensation forming within the floor. This means providing the kind of thermal insulation stipulated under DIN 4108 'Thermal insulation in buildings'.
When laying chipboards and OSB panels on new untreated ceilings, a layer acting as a vapour barrier (PVC film at least 0,5 mm thick) needs to be applied. This film must be drawn out so it overlaps with any adjacent components to ensure the edges of the panels are also protected.

Panels must always be secured at the joints with adhesive and screwed tight to the supporting subsurface.

Any commercially available gypsum fibreboard or gypsum plasterboard can be used.

Mastic asphalt screed is subject to the conditions set out under DIN 18560 and DIN 18533. Mastic asphalt screed should be given a suitable primer and then sanded down with quartz sand. Any excess quartz sand should be removed.

Any existing expansion joints need to be incorporated. Expansion joints should also be added at the wall connection and in the door areas.

Any interior plasterwork must be finished and allowed to dry out.

Preparing the subsurface
Check the subsurface is even and level out any significant areas of unevenness.

Layers of insulation
In exceptional cases, the Roth ClimaComfort® Compact System can also be laid on a layer of insulation.
Please see the process instructions provided by manufacturers PCI and Sopro.
This type of floor structure can be used for surface loads of up to 2 kN/m², making it suitable for:

Area of application	Surface load capacity (kN/m²)	Point load (kN/m²)
Residential and lounge areas	2,0	2,0
Office space	2,0	2,0
Hotel rooms	2,0	2,0
Bedrooms in hospitals	2,0	2,0
Retail spaces up to 50 m²	2,0	2,0

Insulation panels must be denser than 30 kg/m³ and resistant to pressure to at least 200 kPa.

Insulation	Compression strength (10% compressive strain) [kPa]	Density by volume [kg/m³]
Polystyrene rigid foam panels (XPS)	>250 kPa	>30 kg/m³
Polystyrene rigid foam panels (EPS DEO WLG 035)	>250 kPa	>30 kg/m³

Choosing a bonding layer
The type of bonding layer to be used will depend on the material of which the existing subsurface is made. The manufacturer's instructions should be followed when choosing and applying the bonding layer.
- Any enclosed structural elements (existing windows/ doors, component and ambient temperatures not below +5 °C),
- The functionality of expansion joints,
- and any existing joints need to be incorporated, and additional ones should be created as required in the existing floating screed.

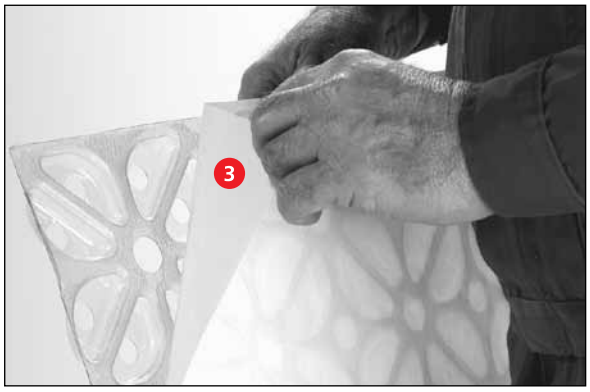
Manifold connection
The Roth manifold with flow rate indicator can be used as a manifold. Depending on what is required, up to 12 heating circuits pipe couplings are available, which can double up with the T connections.
In buildings containing a large number of heating circuits, it is important to ensure that manifolds are kept apart from each other and to avoid an excessive build-up of connection pipes.

Tools

We recommend using the following tools when installing the ClimaComfort® Compact System:
- Roth pipe scissors
- Roth pipe cutter
- Roth knife
- Spiked roller

Assembly instructions

1. Check the installation requirements. Apply a primer to the subsurface.
2. Lay the Roth edge insulating strips.



3. The next stage is to lay the system panels. Remove the silicone paper from the adhesive side of the Roth ClimaComfort® Compact System panel.

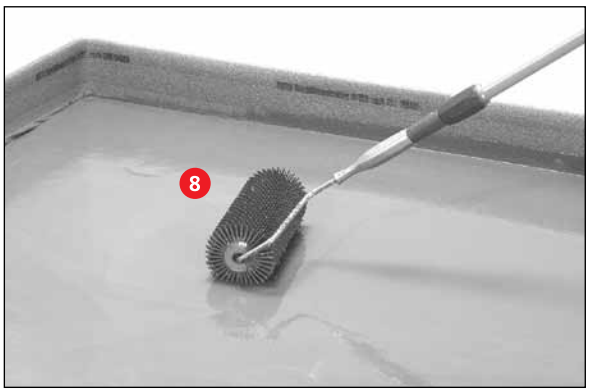
4. Place the first Roth ClimaComfort® Compact System panel in a corner of the room.

5. Roth ClimaComfort® Compact System panels have specially designed edges so the next panel can be laid adjacent to the previous one with a slight overlap.

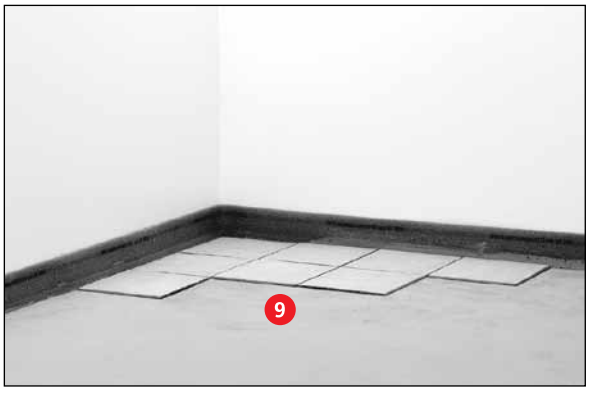
6. Install the pipes.

7. Apply the filling and sealing compound.

8. Apply the finishing touches (spread and leave to air).



9. Apply the floor covering.



Commissioning

Pressure test

A water pressure test must be performed in accordance with DIN EN 1264 both before and during application of the filling and sealing compound. A written protocol should be completed for the tests.

Pressure test (protocol p. 33)

Functional heating

Depending on the filling and sealing compound chosen, functional heating can begin after a suitable drying time has elapsed.
Unless the sealing compound manufacturer specifies other times, functional heating can begin after 3 days.
The maximum inlet temperature should be 15 °C above room temperature initially.
Functional heating should be performed and documented in accordance with the heating protocol.
The manufacturer's instructions also need to be followed.
The inlet temperature should be no more than 45 °C.
When using a combined functional heating and curing approach, it is important to check this complies with the guidelines on interface coordination for heated floor structures.

Curing

Curing is not usually necessary, given that layers of filling and sealing compounds are not very thick. The narrow spacing between the heating pipes makes it almost impossible to use CM measuring to check whether a surface is ready for covering. The 'film test' has proven itself in these situations.
This involves checking how far things have dried out at the maximum permissible inlet temperature/heat output in accordance with the instructions provided by the manufacturer of the filling and sealing compounds. The test is performed in heating mode, with a film around 50 cm x 50 cm being placed on the filling and sealing compound above the heating element. The edges are masked with adhesive tape. Rooms still need to be left to air thoroughly.
The surface is ready for covering if there is no trace of moisture under the film after 24 hours.

Floor coverings

In terms of laying the top floor covering, the filling and sealing compound can be covered once the functional heating phase has been performed and it is clear the surface is ready for covering. It is not usually necessary to smooth things over given the fluidity of the materials used.

Processing instructions for filling and sealing compound

Henkel[1]

Roth ClimaComfort® Compact System on existing subsurfaces			
Subsurface	**Screed**	**Tiles**	**Timber floor boards/Laying panels**
1. Prepare the subsurface (following testing).	Sand/Vacuum	Thomsit PRO 40	Sand/Vacuum
2. Apply a primer to 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- as primer (for A and D)	Cereplan CT 17 (for B) Thomsit R 777 (for A and D)
3. Apply the finishing touches	-	Sand/Vacuum	-
4. Lay the ClimaComfort Compact System	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.
5. Filling and sealing compound for the ClimaComfort Compact System	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 floor coverings after functional heating and curing			
A Parquet (suitable for floor heating)	**Adhesive:** Thomsit P 618/P 625	**Adhesive:** Thomsit P 618/P 626	**Adhesive:** Thomsit P 618/P 627
B Ceramic coverings	**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:** (tailored to covering)	**Adhesive:** Ceramit CM 15 + Ceroc CC 83 **Joint mortar:** (tailored to covering)	**Adhesive:** As specified by manufacturer **Joint mortar:** As specified by manuf.
D Textile/plastic coverings (suitable for floor heating)	**Adhesive:** Thomsit T 410/TK 199	**Adhesive:** Thomsit T 410/TK 199	**Adhesive:** Thomsit T 410/TK 199

[1] The latest instructions from the manufacturer take precedence, even in the event of any discrepancies. We cannot be held responsible for whether instructions are accurate and up to date.

Processing instructions for filling and sealing compound

Bostik[1]

Roth ClimaComfort® Compact System on mineral subsurface			
Subsurface	**Cement screed**	**Anhydrite (floating) screed/Old tiled covering**	**Dry concrete surfaces***
1. Prepare the subsurface (following testing).	Sand/Vacuum		
2. Apply a primer to 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. Lay the ClimaComfort Compact System.	**Lay the Clima- Comfort Compact System.**	**Lay the Clima- Comfort Compact System.**	**Lay the Clima- Comfort Compact System.**
4. Filling and sealing compound for the Clima-Comfort Compact System	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 40 mm	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 40 mm	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 40 mm
* Concrete subsurfaces: with the following parquet coverings, the Bostik Nibogrund E 30 epoxy resin primer must be applied twice to prevent any moisture rising through the capillaries.			
After functional heating and curing, floor coverings should be laid as follows:			
A Parquet (suitable for floor heating)	**NIBOFLOOR PK ELASTIC** Mosaics and small-sized elements, B 3 toothing/Pre-finished parquet and long boards, B 5 toothing		
B Ceramic coverings	**ARDAL FLOORFLEX** Toothing must match the tile type. Fill the joints after 24 hours using **ARDAL FLEXFUGE** **(in wet rooms, bonds must be sealed before the ceramics are laid).**		
C Textile coverings	**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 always have B 2 toothing.		

[1] The latest instructions from the manufacturer take precedence, even in the event of any discrepancies. We cannot be held responsible for whether instructions are accurate and up to date.

Processing instructions for filling and sealing compound

Roth ClimaComfort® Compact System on wooden or dry construction elements and mastic asphalt				
Subsurface	**Mastic asphalt**	**Chipboards V 100 E 1 OSB panels** screwed onto timbers	**Timber floor boards**	**Gypsum fibreboards or gypsum plasterboards**
1. Prepare the subsurface (following testing).	Sand/Vacuum			
2. Apply a primer to the subsurface.	**Bostik Nibogrund E 30** (renovation work only)	**Bostik Nibogrund Elasto Fill**	**Bostik Nibogrund Elasto Fill**	**Bostik Nibogrund Elasto Fill**
3. Make the surface even.	**Bostik Niboplan 300** Max. total thickness 5 mm	**Bostik Niboplan FA 600** Min. 3; max. 15 mm thick	**Bostik Niboplan FA 600** Min. 3; max. 15 mm thick	**Bostik Niboplan FA 600** Min. 3; max. 15 mm thick
4. Stick down the Ardal insulation panels (isolation).	**Ardal flexible mortar and tiled insulation panel**	**Ardal flexible mortar and tiled insulation panel**	**Ardal flexible mortar and tiled insulation panel**	**Ardal flexible mortar and tiled insulation panel**
5. Lay the ClimaComfort Compact System.	**Lay the ClimaComfort Compact System.**	**Lay the ClimaComfort Compact System.**	**Lay the ClimaComfort Compact System.**	**Lay the ClimaComfort Compact System.**
6. Filling and sealing compound for the ClimaComfort Compact System	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 20 mm	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 20 mm	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 20 mm	**Bostik Niboplan DE** Min. 3 mm above top edge of pipe Max. total height 20 mm
Laying floor coverings in the Roth ClimaComfort® Compact System on wooden or dry construction elements and mastic asphalt following heating				
A Parquet (suitable for floor heating)	**NIBOFLOOR PK Elastic** Mosaics and small-sized elements, B 3 toothing/Pre-finished parquet and long boards, B 5 toothing			
B Ceramic coverings	**ARDAL FLOORFLEX** Toothing must match the tile type. Fill the joints after 24 hours using **ARDAL FLEXFUGE** **(in wet rooms, bonds must be sealed before the ceramics are laid).**			
C Textile coverings	**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 always have B 2 toothing.			

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PCI[1]

Roth ClimaComfort® Compact System on existing subsurfaces*

Preparation			Other information
Make the surface even.		PCI Periplan	DIN 18202, Table 3, Row 3
Use PCI Pecidur panels to make the height level.		PCI Pecidur panels - of varying thickness - can be used to level off the subsurface and act as supporting panels.	Primer on: • Screed/Concrete: PCI Gisogrund. • Timber floor boards/Chipboards: PCI Wadian. PCI Pecidur panels need to be laid with PCI Nanoflott flex on a clean and dry subsurface capable of bearing a load.

Subsurface	Preparation	Surface covering				
			Ceramic coverings	Natural stone	Parquet[2]	Textile/ Plastic
Screed/ Concrete		Primer	PCI Gisogrund 404		Pre-coat with VG 2 or PCI Gisogrund 404.	
		Sealing compound	PCI Periplan extra		HSP 34, a smoothing agent for wooden floors, or PCI Periplan extra	
		Adhesive	PCI Nanolight PCI Nanoflott PCI Rapidflott	PCI Carraflex PCI Carraflott NT	Powder parquet adhesive PAR 362	-
		Joint mortar	PCI Flexfug	PCI Carrafug	-	-
Timber floor boards	• Loose boards must be screwed down firmly onto the subsurface. • The spaces or joints between the boards must be sealed with suitable sealants, such as the PCI Adaptol acrylic sealant. • For levelling off the subsurface: PCI Periplan extra or HSP 34, a smoothing agent for wooden floors.	Primer	PCI Gisogrund 404		Pre-coat with VG 2 or PCI Gisogrund 404.	
		Sealing compound	PCI Periplan extra		HSP 34, a smoothing agent for wooden floors, or PCI Periplan extra	
		Adhesive	PCI Nanolight PCI Nanoflott PCI Rapidflott	PCI Carraflex	Powder parquet adhesive PAR 362	-
		Joint mortar	PCI Nanofug	PCI Carrafug	-	-
Chipboards/ OSB panels	• When laying on new untreated ceilings, a layer (film) must be applied first to act as a vapour barrier. • Panels must always be secured at the joints with adhesive and screwed tight to the supporting subsurface in a 40 by 40 cm grid. • To prevent moisture causing deformities, a primer must be applied before the sealing compound to act as a moisture barrier.	Primer	PCI Gisogrund 404		Pre-coat with VG 2 or PCI Gisogrund 404.	
		Sealing compound	PCI Periplan extra		HSP 34, a smoothing agent for wooden floors, or PCI Periplan extra	
		Adhesive	PCI Nanolight	PCI Carraflex	Powder parquet adhesive PAR 362	-
		Joint mortar	-	PCI Carrafug	-	-
Dry screed panels		Primer	PCI Gisogrund 404		Pre-coat with VG 2 or PCI Gisogrund 404.	
		Sealing compound	PCI Periplan extra		HSP 34, a smoothing agent for wooden floors, or PCI Periplan extra	
		Adhesive	PCI Nanolight	PCI Carraflex	Powder parquet adhesive PAR 362	-
		Joint mortar	PCI Nanofug	PCI Carrafug		
Tiles		Primer	PCI Gisogrund 404		Pre-coat with VG 2 or PCI Gisogrund 404.	
		Sealing compound	PCI Periplan extra		HSP 34, a smoothing agent for wooden floors, or PCI Periplan extra	
		Adhesive	PCI Nanolight	PCI Carraflex	Powder parquet adhesive PAR 362	-
		Joint mortar	PCI Nanofug	PCI Carrafug	-	-

Processing instructions for filling and sealing compound

PCI:

Start of functional heating: after 24 hours.

*** Information on laying the ClimaComfort Compact System with PCI products**
Before the ClimaComfort Compact System can be laid, the load-bearing subsurface must be clean, firm, even, and free of any loose residue, like left over varnish. The subsurface may need to be sanded down and vacuumed. Any unevenness, cracks, or splits in the subsurface should be filled in using a suitable smoothing or levelling agent. Any interior plasterwork must be finished and allowed to dry out. Any existing expansion joints need to be incorporated. If are there any special requirements in terms of the subsurface, or there is any uncertainly regarding the requirements, we can provide support through our field service in collaboration with the manufacturers of the building materials used.

[1] The latest instructions from the manufacturer take precedence, even in the event of any discrepancies. We cannot be held responsible for whether instructions are accurate and up to date.
[2] The ClimaComfort Compact System may not be used under parquet for cooling purposes.

Knauf[1]

Roth ClimaComfort® Compact System on existing subsurfaces

Subsurface	Screed	Tiles	Timber floor boards/ Laying panels
1. Prepare the subsurface (following testing).	The subsurface must be able to take a load, have no cracks, and have a firm, clean upper surface. Any cracks must be filled.		
2. Apply a primer to the subsurface.	Cement screed: Knauf Estrichgund 1:1 Calcium sulphate screed: 2 x Knauf FE impregnation	2 x Knauf FE impregnation	Apply Knauf Spezialhaftgrund to the subsurface as a primer + 2 mm, smooth over with Knauf Faserflex 15, apply Knauf Estrichgund 1:1 twice as further priming coats.
3. Apply the finishing touches.	-	Sand/Vacuum	-
4. Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.		
5. Filling and sealing compound for the ClimaComfort Compact System	Apply Knauf Nivellierestrich 425 to a thickness of at least 8 mm over the Roth ClimaComfort® Compact System panel.		
Heating can start after just 2 days. Floating structures are also possible with screeds of 20 mm and above using Knauf Nivellierestrich 425. Laying floor coverings after functional heating and curing			

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Sopro[1]

Roth ClimaComfort® Compact System on existing subsurfaces				
Subsurface		**Screed/Concrete**	**Tiles**	**Timber floor boards/ Laying panels**
Tiles	Primer	Sopro primer	Sopro bonding primer Sopro special primer	Sopro bonding primer Sopro special primer
	Smoothing	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound
	Adhesive	Sopro`s no. 1 Sopro VarioFlex	Sopro`s no. 1 Sopro Saphir water-repellent tile grout	Sopro`s no. 1 Sopro VarioFlex
	Joint mortar	Sopro flexible tile grout or Sopro Saphir water-repellent tile grout	Sopro flexible tile grout or Sopro Saphir water-repellent tile grout	Sopro flexible tile grout or Sopro Saphir water-repellent tile grout
Natural stone	Primer	Sopro primer	Sopro bonding primer Sopro special primer	Sopro bonding primer Sopro special primer
	Smoothing	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound
	Adhesive	Sopro VarioFlex adhesive for marble tiles Sopro flexible adhesive for marble tiles	Sopro VarioFlex adhesive for marble tiles Sopro flexible adhesive for marble tiles	Sopro VarioFlex adhesive for marble tiles Sopro flexible adhesive for marble tiles
	Joint mortar	Sopro flexible tile grout or Sopro Saphir M water-repellent marble grout	Sopro flexible tile grout or Sopro Saphir M water-repellent marble grout	Sopro flexible tile grout or Sopro Saphir M water-repellent marble grout
Parquet	Primer	Sopro primer	Sopro bonding primer Sopro special primer	Sopro bonding primer Sopro special primer
	Smoothing	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound
	Adhesive	Sopro parquet adhesive D or Sopro parquet adhesive PU (depending on parquet type)	Sopro parquet adhesive D or Sopro parquet adhesive PU (depending on parquet type)	Sopro parquet adhesive D or Sopro parquet adhesive PU (depending on parquet type)
	Joint mortar	-	-	-
Carpet, lino-leum, PVC	Primer	Sopro primer	Sopro bonding primer Sopro special primer	Sopro bonding primer Sopro special primer
	Smoothing	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound	Sopro FS 15 plus floor-levelling compound Sopro FS 30 maxi floor-levelling compound Sopro fibre-reinforced self-levelling filler Sopro lightweight floor-levelling compound
	Adhesive	Suitable adhesive for the relevant surface covering	Suitable adhesive for the relevant surface covering	Suitable adhesive for the relevant surface covering
	Joint mortar	-	-	-

Sopro:

Please ensure the chosen smoothing agent covers the pipes by at least 5 mm. The areas in question should not exceed 25 m². An inlet temperature of 15 °C must be maintained during installation work in the cold part of the year. The subsurface for laying must be sufficiently stable. Additional isolation measures may be required, particularly for wooden subsurfaces.

The smoothing agent used may be walked upon after ≥3 hours. Functional heating may begin 2 days after the smoothing agent has been applied. Functional heating takes 2 days. Tile laying can start again 1 day after functional heating has finished.

The tips and guidelines in the relevant product information provided should be followed when processing the above products. This table cannot cover all the various conditions which might be encountered on site. Please ask for expert advice on a case-by-case basis.

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Glass[1]

Roth ClimaComfort® Compact System on existing subsurfaces		
Subsurface	**Screed**	**Tiles**
1. Prepare the subsurface (following testing).	As per the BEB work and information sheets	Sand/Vacuum
2. Apply a primer to the subsurface	Glasconal Primer	Glascopox universal resin
3. Apply the finishing touches	-	Sand/Vacuum
4. Lay the ClimaComfort Compact System	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.
5. Filling and sealing compound for the ClimaComfort Compact System	Glasconal NSM Min. 3 mm above top edge of pipe	Glasconal NSM Min. 3 mm above top edge of pipe
Laying floor coverings after functional heating and curing		

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Kiesel[1]

Roth ClimaComfort® Compact System on screed and old ceramic covering				
Surface covering	**Tiles**	**Natural stone**	**Parquet**	**Carpet/PVC**
Primer	Okatmos® UG 30/Okatmos EG 20			
Smoothing uneven areas	Servoplan S 202[1)]/Servoplan D 800[1)]			
Primer	If necessary, Okatmos® UG30/Okatmos® EG 20			
Smoothing layer	Servoplan S 202 Servoplan S 444		Servoplan S 444 –	Servoplan S 202 Servoplan S 444
Functional test	Perform the heating process.			
Primer	If necessary, Okatmos® UG30/Okatmos® EG 20			
Isolation	Kiesel Tension Reduction Fleece/Okaphone 4		Okavlies/Okaphone 4	
Adhesive	Servoflex K-Plus SuperTec[2)] Servoflex-Trio-SuperTec[2)] Servolight[2)]	ServoStar® 4000 Flex[2)] Servoflex Trio-Super Tec fast white/grey[2)]	Bakit PPK[3)] Bakit EK[3)]	Okatmos®
Joint mortar	Servoperl-Schnell Servoflex F	Servoperl-Schnell Servoflex F	–	–

Heating: Start functional heating after 3 days.
This should last 4 days (1 day at inlet temperature of 25 °C/3 days at max. inlet temperature).

1) If the floor covering is associated with higher requirements than DIN 18202, Table 3, Row 3 in terms of evenness tolerances, a further thin layer of finishing/smoothing agent may need to be applied.
2) Max. area 25 m²
3) Consult Kiesel application experts/Max. surface temperature of parquet is 27 °C.

[1] The latest instructions from the manufacturer take precedence, even in the event of any discrepancies. We cannot be held responsible for whether instructions are accurate and up to date.

Processing instructions for filling and sealing compound

Ardex[1]

Roth ClimaComfort® Compact System on existing subsurfaces		
Subsurface	**Screed**	**Tiles**
1. Prepare the subsurface (following testing)	Sand/Vacuum	Sand/Vacuum
2. Apply a primer to the subsurface	Ardex P 51 (for A to D)	2xArdex EP 2000 (for A to D)
3. Apply the finishing touches	-	Sand/Vacuum
4. Lay the ClimaComfort Compact System	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.
5. Filling and sealing compound for the Clima-Comfort Compact System	Ardex FA 20 (for A to D)	Ardex FA 20 (for A to D)
Laying floor coverings after functional heating and curing		
A Parquet (suitable for floor heating)	**Adhesive:** Ardex P 410	**Adhesive:** Ardex P 410
B Ceramic coverings	**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 coverings (suitable for floor heating)	**Adhesive:** Ardex Premium U 2200	**Adhesive:** Ardex Premium U 2200

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botament[1]

Roth ClimaComfort® Compact System on existing subsurfaces						
Subsurface	**Layered structure**	**Ceramic covering**	**Natural stone**	**Parquet**	**Textile covering**	**Plastic covering**
Cement screed, concrete	Preparation	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.
	Primer, subsurface	BOTACT D 11	BOTACT D 11	BOTAFLOOR G 110	BOTAFLOOR G 110	BOTAFLOOR G 110
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 220	BOTAFLOOR A 220	BOTAFLOOR A 220
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			
Calcium sulphate screed	Preparation	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum
	Primer Subsurface	BOTACT D 11	BOTACT D 11	BOTAFLOOR G 110	BOTAFLOOR G 110	BOTAFLOOR G 110
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 240	BOTAFLOOR A 240	BOTAFLOOR A 240
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			
Mastic asphalt screed	Preparation	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.
	Primer Subsurface	BOTACT D 15	BOTACT D 15	BOTAFLOOR G 120	BOTAFLOOR G 120	BOTAFLOOR G 120
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 260	BOTAFLOOR A 260	BOTAFLOOR A 260
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			
Old tiled covering	Preparation	Clean/Degrease	Clean/Degrease	Clean/Degrease	Clean/Degrease	Clean/Degrease
	Primer Subsurface	BOTACT D 15	BOTACT D 15	BOTAFLOOR G 120	BOTAFLOOR G 120	BOTAFLOOR G 120
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 220	BOTAFLOOR A 220	BOTAFLOOR A 220
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			

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Processing instructions for filling and sealing compound

Roth ClimaComfort® Compact System on existing subsurfaces						
Subsurface	**Layered structure**	**Ceramic covering**	**Natural stone**	**Parquet**	**Textile covering**	**Plastic covering**
Timber floor boards	Preparation	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.	Clean/remove any loose bits.
	Primer, subsurface	BOTACT D 15	BOTACT D 15	BOTAFLOOR G 120	BOTAFLOOR G 120	BOTAFLOOR G 120
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 260	BOTAFLOOR A 260	BOTAFLOOR A 260
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			
Chipboards OSB panels	Preparation	Clean/ Tighten	Clean/ Tighten	Clean/ Tighten	Clean/ Tighten	Clean/ Tighten
	Primer Subsurface	BOTACT D 15	BOTACT D 15	BOTAFLOOR G 120	BOTAFLOOR G 120	BOTAFLOOR G 120
	Sealing compound	BOTACEM M 53 Extra	BOTACEM M 53 Extra	BOTAFLOOR A 260	BOTAFLOOR A 260	BOTAFLOOR A 260
	Primer Sealing compound	BOTACT D 11	BOTACT D 11			
	Adhesive	BOTACT M 29 MULTISTAR	MULTISTONE	BOTAFLOOR P 450	BOTAFLOOR T 350	BOTAFLOOR K 550
	Joint mortar	MULTIFUGE MULTIFUGE schmal	MULTIFUGE MULTIFUGE schmal			

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Processing instructions for filling and sealing compound

maxit[1]

Roth ClimaComfort® Compact System					
Subsurface	**Cement screed/ concrete, cement-bonded smoothing agents; anhydrite floating screed, calcium sulphate screed; tiles/natural stone/concrete stone**	**Mastic asphalt*) sanded down**	**Mastic asphalt*) smooth**	**Floor boards/ OSB panels**	**Chipboards**
1. Prepare the subsurface.	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum	Sand/Vacuum
2. Apply a primer to the subsurface.	maxit floor 4716 bonding primer 1:3 thinned with water	maxit floor 4716 bonding primer 1:1 thinned with water	maxit floor 4712 primer EC 1	maxit floor 4716 bonding primer 1:1 thinned with water	maxit floor 4712 primer EC 1
3. Make the surface even, positional requirements.	maxit floor 4031 plus 1 smoothing compound to 10 mm	maxit floor 4095 Alpha smoothing compound 2 to 10 mm	maxit floor 4095 Alpha smoothing compound 2 to 10 mm	maxit floor 4033 fibre-reinforced fine filler plus 3 to 10 mm	maxit floor 4033 fibre-reinforced fine filler plus 3 to 10 mm
4. Primer for intermediate smoothing, positional requirements.	maxit floor 4716 bonding primer 1:3 thinned with water	maxit floor 4716 bonding primer 1:1 thinned with water	maxit floor 4716 bonding primer 1:1 thinned with water	maxit floor 4716 bonding primer 1:3 thinned with water	maxit floor 4716 bonding primer 1:3 thinned with water
5. Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.	Lay the ClimaComfort Compact System.
5.1. Cement-bonded filling and sealing compound for the ClimaComfort Compact System	maxit floor 4160 fast-acting levelling/smoothing agent min. 5 mm above pipe, max. 30 mm total height				
5.2. Calcium-sulphate-bonded filling and sealing compound for the Clima-Comfort Compact System	maxit floor 4190 Alpha thin screed min. 10 mm above pipe, max. 30 mm total height				
Floor coverings should be laid directly after functional heating. This is particularly true of the cement-bonded filling compound known as maxit floor 4160 fast-acting levelling/ smoothing agent. The information in the heating protocol needs to be observed. With maxit floor 4160 fast-acting levelling/smoothing agent, functional heating can start after 24 hours at the earliest, but can start after just 6 hours with maxit floor 4190 Alpha-thin screed.					
Parquet suitable for floor heating	maxit floor 4835 parquet adhesive SE; recommended toothing B3				
Ceramic coverings	Moisture level 0, A01 and A02 Adhesive mortar: Deitermann KM Flex or KM Flex + Fix Joint mortar: Deitermann KF or KF Fix				
Natural stone	Adhesive mortar: Deitermann KM Flex + Fix white Joint mortar: Deitermann Cerinol FN				
Textile coverings	maxit floor 4805 carpet adhesive SE; recommended toothing A2/B1/B2				
Smooth linoleum or PVC coverings suitable for floor heating	The long period of subsequent activity in the ClimaComfort system means a pipe coverage of just 5 mm would create an uneven surface, which would require further smoothing over or mean increasing the pipe coverage to 10 mm. maxit floor 4825 linoleum adhesive SE can be used as an adhesive for linoleum and maxit floor 4815 PVC adhesive SE can be used for PVC coverings.				

[1] The latest instructions from the manufacturer take precedence, even in the event of any discrepancies. The latest data sheets are available at www.maxit.de.

*) The mastic asphalt must be suitable for heated structures.

Leak test protocol

with a view to conducting a leak test on radiant heating and cooling systems in accordance with DIN EN 1264, Part 4

Building project: _____

Client: _____

Contractor: _____

As part of the above-mentioned building project, the following Roth radiant heating and cooling system has been installed:

System	Pipe type	
☐ **Roth Original Tacker® System**	☐ **Roth DUOPEX S5®**	☐ **Ø14** ☐ **Ø17** ☐ **Ø20** ☐ **Ø25**
☐ **Roth Knob System**		
☐ **Roth ClimaComfort® Dry Construction System**		
☐ **Roth Pipefix System**	☐ **Roth X-PERT S5®+**	☐ **Ø14** ☐ **Ø16** ☐ **Ø17** ☐ **Ø20**
☐ **Roth ClimaComfort® Panel System**		
☐ **Roth ClimaComfort® Compact System**		
☐ **Roth industrial radiant heating/ not residential buildings**	☐ **Roth Alu-Laserflex**	☐ **Ø14** ☐ **Ø16**
☐ **Roth sport and sprung floor heating**	☐ **Roth ClimaComfort® S5**	☐ **Ø11**
☐ **Roth structural temperature control**	☐ **Roth PERTEX® S5**	☐ **Ø17**
☐ **Roth outdoor panel heating**		

The leak test can be performed using water, pressurised air, or inert gas.
The heating circuits have been checked for leaks before applying the load-distribution layer. All lines have been sealed with metal plugs, caps, or similar devices. Any apparatus, pressure containers, or fittings not needed for the pressure test have been removed from the lines.

Ambient temperature: _____ °C
Testing medium temperature: _____ °C

Leak test protocol

Testing medium, pressurised air or inert gas:

☐ Oil-free pressurised air ☐ Nitrogen ☐ Carbon dioxide

☐ _____

All lines have been sealed with metal plugs, caps, blanking plates, or blind flanges.
Any apparatus, pressure containers, or fittings not suitable for the pressure test have been removed from the lines.

☐ All pipe connections have been visually inspected to check they have been properly arranged

Test pressure: _____ 110 mbar

Test period (up to 100 l line volume) 30 min
For each additional 100 l _____ + 10 min

We waited until temperatures had been calibrated and a state of stability had been achieved in terms of any plastic materials before starting the test period.

Line volume: _____ l **Test period:** _____ min

☐ **No drop in pressure has been detected during the test period.**
☐ **There is no evidence of leaks.**
☐ **The test criteria have been satisfied.**

Load testing at increased pressure

Test pressure Ø ≤50 mm: _____ bar (maximum of 3 bar)
Test period: _____ min (minimum 10 min)

We waited until temperatures had been calibrated and a state of stability had been achieved in terms of any plastic materials before starting the test period.

☐ **No drop in pressure has been detected during the test period.**
☐ **There is no evidence of leaks.**
☐ **The test criteria have been satisfied.**

Town/City: _____ Date: _____

Builder/Client Stamp/Signature	Building manager/Architect Stamp/Signature	Heating engineering company/Installation company Stamp/Signature

Leak test protocol

Testing medium, water:

The test pressure must **not be less than 4 bar** and **not more than 6 bar.**

☐ The fill-up water has been filtered and the heating circuits fully vented.

☐ The temperature difference between the fill-up water and the environment does not exceed 10 °C.

Main test for smaller installations (e.g. on each floor) or preliminary test for large objects
Test period: 60 min

1. Permissible test pressure

P_{test} = 1,5 x $P_{operation}$ **P_{test} Test pressure applied: _____ bar**

2 x P_{test} in 30 min Test pressure generated twice within 30 min.
Time intervals between tests 10 min

2. Permissible pressure drop in 30 min

Max. 0,6 bar (0,1 bar/5 min)

P_{min}= P_{test}- 0,6 bar **P_{act} ≥ P_{min} (after 30 min): _____ bar**

☐ **There is no evidence of leaks.**

☐ **The test criteria have been satisfied.**

Main test for large objects (if required)
Test period 120 min

Permissible pressure drop: max. 0,2 bar

P_{min}= P_{test}- 0,2 bar **P_{act} ≥ P_{min} (after 120 min): _____ bar**

☐ **There is no evidence of leaks.**

☐ **The test criteria have been satisfied.**

Suitable measures need to be taken if there is a risk of frost. These include using antifreeze and temperature equalisation of the building. At the time the system began normal operation, any antifreeze can be drained and disposed of in accordance with national occupational health and safety requirements.
The system then needs to be rinsed out 3 times with clean water.

Town/City: _____ Date: _____

Builder/Client Stamp/Signature	Building manager/Architect Stamp/Signature	Heating engineering company/Installation company Stamp/Signature

Heating protocol

for Roth ClimaComfort® Compact System

(to be completed by the heating engineering company and enclosed with the contract documentation)

Client/Building project: _____

_____

Building manager/Architect: _____

_____

Heating company: _____

Floor installer: _____

ClimaComfort Compact System _____ m^2 - installed on the _____

Filling and sealing compound applied on the _____

Manufacturer:

Bostik Glass ARDEX Henkel PCI Knauf Kiesel Sopro maxit botament

Proposed thickness of the selected smoothing layer min. mm _____

Primer applied on the _____

Smoothing layer applied on the _____

Outside temperature at start of heating approx. _____ °C

Functional heating started on (date) at (temp.) _____ °C (for at least 1 day)

Max. laying temperature from (date) at (temp.) _____ °C (for at least 1 day)

The max. laying temperature was maintained for _____ days without dropping during the night.

The heated surface was free of covers or building materials. ☐ Yes ☐ No

Installation handed over on the _____ inlet temp. _____ °C outside temperature _____ °C

Functional heating confirmed as per data sheet overleaf:

Town/City: _____ Date: _____

_____	_____	_____
Builder/Client Stamp/Signature	Building manager/Architect Stamp/Signature	Heating engineering company Stamp/Signature

Standards and directives

The following laws, directives, guidelines, and standards need to be taken into account when planning and creating a heating installation:

- German Energy Conservation Act (Energieeinsparungsgesetz - EnEG)
- German Energy Saving Directive (Energieeinsparverordnung - EnEV)
- German Heating Costs Directive (Heizkostenverordnung - HeizkostenV)
- The individual administrative instructions from the various German states regarding the EnEG

Standards, guidelines, and German Contract Procedures for Building Works (Verdingungsordnung für Bauleistungen - VOB)

- DIN 1045 Plain, reinforced and prestressed concrete structures
- DIN 1961 German construction contract procedures (VOB) - Part B: General conditions of contract relating to the execution of construction work
- DIN 4102 Fire behaviour of building materials and building components
- DIN 4108 Thermal insulation in buildings
- DIN 4109 Sound insulation in buildings
- DIN 4726 Warm water surface heating systems and radiator connecting systems - Plastics piping systems and multilayer piping systems
- DIN 16833 Polyethylene pipes of raised temperature resistance
- DIN 16834 Polyethylene pipes of raised temperature resistance
- DIN 18195 Water-proofing of buildings
- DIN 18202 Tolerances in building construction - Structures
- DIN 18336 German construction contract procedures (VOB), Waterproofing
- DIN 18352 German construction contract procedures (VOB), Wall and floor tiling
- DIN 18353 German construction contract procedures (VOB), Laying of floor screed
- DIN 18356 German construction contract procedures (VOB), Laying of parquet flooring
- DIN 18533 Water-proofing of components in contact with the ground
- DIN 18560 Floor screeds in building construction
- DIN 18365 German construction contract procedures (VOB), Flooring work
- DIN 18380 German construction contract procedures (VOB), Installation of central heating systems and hot water supply systems
- DIN EN 1264 Water based surface embedded heating and cooling systems
- DIN EN 1991-1-1 Actions on structures
- DIN EN 1991-1-1/NA Actions on structures – National determined parameters
- DIN EN 12828 Design of water-based heating systems
- DIN EN 12831 Heating systems in buildings - Method for calculation of the design heat load
- DIN EN 13162 to DIN EN 13171 Thermal insulation products for buildings
- DIN EN 13163 Thermal insulation products for buildings
- DIN EN 13813 Screed material and floor screeds - Screed materials - Properties and requirements
- DIN EN ISO 15875 Plastics piping systems for hot and cold water installations
- Techn. data sheet regarding interface coordination for heated floor structures
- VDI 2035 Part 2 Prevention of damage in water heating installations - Water-side corrosion.

The guarantees and warranty conditions apply to the Roth ClimaComfort® Compact System in accordance with the warranty certificates enclosed with the products.

GUARANTEE DOCUMENT

Roth Floor Heating and Cooling Systems
Roth Pipe Installation Systems

1. Within 10 years from installation, yet no longer than 10 1/2 years after delivery of the system components, we will provide free product replacement of our choice, or repair and compensate for damage to the system components delivered by us if they are attributable to material defects or manufacturing faults.
Excluded from this are mechanical moving parts and products as well as electrical and electrically driven parts and products for which we provide the above-mentioned warranty within a period of 12 months from installation in cases of material defects or manufacturing faults.

2. Requirements for this guarantee are:

a. only system components belonging to the respective Roth radiant heating and cooling system/pipe installation system are used and fitted,
b. documented compliance of the planning, installation and operating instructions valid at the time of installation,
c. compliance with the standards and directives valid for these works and the applicable adjoining works in connection with the respective Roth radiant heating and cooling system/Roth pipe installation system,
d. that the installation company and the companies building and expanding the works are all recognised and approved specialist companies and these companies have provided confirmation on this certificate with their name and signature,
e. the immediate return of a copy of the completely filled out warranty certificate to us,
f. to immediately report damage and at the same time send the warranty certificate to us,
g. to raise the claim within the warranty period.

We are insured against claims from this promise by an extended public and product liability insurance policy with a sum insured of **Euro 5.000.000** for personal injury and material damage for each insured event.
The statutory consumer protection regulations remain unaffected by this warranty.

The above guarantee concerns:

Building _____

Builder _____

RADIANT HEATING AND COOLING SYSTEMS

- ☐ Roth Original Tacker® system
- ☐ Roth Knob System
- ☐ Roth ClimaComfort® TBS
- ☐ Roth ClimaComfort® Panel System
- ☐ Roth ClimaComfort® Compact System
- ☐ Roth Pipefix System
- ☐ Roth industrial radiant heating
- ☐ Roth sport and sprung floor heating
- ☐ Roth outdoor panel heating

PIPE INSTALLATION SYSTEMS

- ☐ Roth radiator connecting system
- ☐ Roth drinking water system

The system components belonging to the respective Roth radiant heating and cooling system or to the respective Roth pipe installation system were fully supplied and fitted on the day of installation.

Radiant heating and cooling system: _____ m^2 installed area

Radiator connecting system: _____ number of radiator connections

Drinking water system: _____ number of point of use connections

Specialist heating company: _____
Signature | Stamp | Installation date

Installed/extended works: _____
Signature | Stamp | Completion date

_____
Signature | Stamp | Completion date

Commissioning: _____
Signature | Stamp | Commissioning date

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Notes

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